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DRINKING WATER SURVEILLANCE PROGRAM

**PETERBOROUGH
WATER SUPPLY
SYSTEM**

REPORT FOR 1991 AND 1992

ISSN 0840-514X

**PETERBOROUGH WATER SUPPLY SYSTEM
DRINKING WATER SURVEILLANCE PROGRAM
REPORT FOR 1991 AND 1992**

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EXECUTIVE SUMMARY

DRINKING WATER SURVEILLANCE PROGRAM

PETERBOROUGH WATER SUPPLY SYSTEM 1991 AND 1992 REPORT

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to include all municipal supplies in Ontario. In 1991, 96 supplies and in 1992, 109 supplies were being monitored.

The Peterborough water treatment plant is a conventional treatment plant which treats water from the Otonabee River. The process consists of coagulation, flocculation, sedimentation, filtration, fluoridation and disinfection. Chlorine is added at the mouth of the intake structure for zebra mussel control when the raw water temperature is above 12°C. Sulphur dioxide is added to remove the excess chlorine in the disinfection process and potassium hydroxide is added to adjust the pH of the treated water. Addition of potassium hydroxide was initiated in June of 1992. This plant has a rated capacity of 104 x 1000 m³/day. The Peterborough water supply system serves a population of approximately 68,371.

Water at the plant and at two locations in 1991 and one location in 1992 in the distribution system was sampled for the presence of approximately 180 parameters. Parameters were divided into the following groups: bacteriological, inorganic and physical (laboratory chemistry, field chemistry and metals), organic (chloroaromatics, chlorophenols, pesticides and PCB, phenolics, polyaromatic hydrocarbons and volatiles) and radiological (radionuclides). Most laboratory analyses were conducted at the Ministry of the Environment and Energy facilities in Rexdale, Ontario. Radionuclides were analyzed by the Ministry of Labour.

Table A is a summary of all results by group.

No known health related guidelines were exceeded.

The Peterborough water treatment plant, for the sample years 1991 and 1992, produced good quality water and this was maintained in the distribution system.

TABLE A
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH WSS

SUMMARY TABLE BY SCAN

A POSITIVE VALUE DENOTES THAT THE RESULT IS GREATER THAN THE STATISTICAL LIMIT OF DETECTION AND IS QUANTIFIABLE
A " " INDICATES THAT NO SAMPLE WAS TAKEN

SCAN	SITE		RAW		TREATED		MONTICALLY		HAROLD OR	
	TESTS	%POSITIVE	TESTS	%POSITIVE	TESTS	%POSITIVE	TESTS	%POSITIVE	TESTS	%POSITIVE
BACTERIOLOGICAL	33	23	69	11	1	9	5	0	11	3
CHEMISTRY (FIELD)	36	36	100	69	69	100	72	71	98	133
CHEMISTRY (LABORATORY)	279	241	86	279	217	77	203	183	90	449
METALS	288	68	23	288	73	25	230	86	37	233
CHLOROPHENOLS	126	0	0	126	0	0	42	1	2	126
CHLOROPHENOLS	12	0	0	12	0	0	0	0	0	0
PESTICIDES AND PCB	301	0	0	314	3	0	67	1	1	198
PHENOLICS	12	1	8	12	0	0	0	0	0	0
POLYAROMATIC HYDROCARBONS	68	0	0	68	0	0	51	0	0	68
SPECIFIC PESTICIDES	53	0	0	48	0	0	1	0	0	1
VOLATILES	358	0	0	358	36	10	174	18	10	358
RADIONUCLIDES	28	5	17	28	5	17	0	0	0	0
TOTAL	1,594	374	1,613	404	845	360	1,943	856		

DRINKING WATER SURVEILLANCE PROGRAM

PETERBOROUGH WATER SUPPLY SYSTEM 1991 AND 1992 REPORT

INTRODUCTION

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to include all municipal supplies in Ontario. In 1991, 96 supplies and in 1992, 109 supplies were being monitored.

Appendix A has a full description of the DWSP.

The DWSP was initiated for the Peterborough water treatment plant in January, 1987. Previous annual reports have been published for 1987, 1988, 1989 and 1990.

PLANT DESCRIPTION

The Peterborough water treatment plant is a conventional treatment plant which treats water from the Otonabee River. The process consists of coagulation, flocculation, sedimentation, filtration, fluoridation and disinfection. Chlorine is added at the mouth of the intake structure for zebra mussel control when the raw water temperature is above 12°C. Sulphur dioxide is added to remove the excess chlorine in the disinfection process and potassium hydroxide is added to adjust the pH of the treated water. Addition of potassium hydroxide was initiated in June of 1992. This plant has a rated capacity of 104 x 1000 m³/day. The Peterborough water supply system serves a population of approximately 68,371.

The sample day flows ranged from 26.500 x 1000 m³/day to 77.280 x 1000 m³/day.

General plant information is presented in Table 1 and a schematic of plant processes, chemical addition points and sampling locations in Figure 1.

SAMPLING AND ANALYSES

Stringent DWSP sampling protocols were followed to ensure that all samples were collected in a uniform manner (see Appendix B).

Sample lines in the plant were flushed prior to sampling to ensure that the water obtained was indicative of its origin and not residual water standing in the sample line.

Attempts were made to capture the same block of water at each sampling point by taking the retention time into consideration. Retention time was calculated by dividing the volume of water between two sampling points by sample day flow. For example, if it was determined that retention time within the plant was five hours, then there would be a five hour interval between the raw and treated sampling. Similarly, if it was estimated that it took approximately one day for the water to travel from the plant to the distribution system site, this site would be sampled one day after the treated water from the plant.

To obtain a representative raw water sample, free from any added chemicals, at plants which used chlorine for zebra mussel control, the operator was required to turn off the chlorine feed to the mouth of the intake and allow enough time for the chlorinated water to clear from the intake works.

Plant operating personnel routinely analyzed parameters for process control (Table 2).

At all distribution system locations, two types of samples were obtained, a standing and a free flow. The standing sample consisted of water that had been in the household plumbing and service connection for a minimum of six hours. These samples were used to make an assessment of the change in the levels of inorganic compounds and metals due to leaching from, or deposition on, the plumbing system. The only analyses carried out on the standing samples, therefore, were laboratory chemistry and metals. The free flow sample represented fresh water from the distribution system main, since the sample tap was flushed for five minutes prior to sampling.

Water at the plant and at two locations in 1991 and one location in 1992 in the distribution system was sampled for the presence of approximately 180 parameters. Parameters were divided into the following groups: bacteriological, inorganic and physical (laboratory chemistry, field chemistry and metals), organic (chloroaromatics, chlorophenols, pesticides and PCB, phenolics, polyaromatic hydrocarbons and volatiles) and radiological (radionuclides). Most laboratory analyses were conducted at the Ministry of the Environment and Energy facilities in Rexdale, Ontario. Radionuclides were analyzed by the Ministry of Labour.

RESULTS

Field measurements were recorded on the day of sampling and were entered onto the DWSP database as submitted by plant personnel.

Table 3 contains information on delay time between the raw and treated water sampling, flow rate, and treatment chemicals dosages. Table 4 is a summary of all results by parameter and by water type.

If a parameter was not detected, the total number of negative sample results is given. In contrast, if a parameter was detected at any location, the detailed results for all samples are provided.

Positive denotes that the result is greater than the statistical limit of detection established by the Ministry of the Environment and Energy laboratory staff and is quantifiable. Trace (<T) denotes that the level measured is greater than the lowest value detectable by the method but lies so close to the detection limit that it cannot be confidently quantified.

Table 5 lists all parameters analyzed in the DWSP.

Associated guidelines and detection limits are also supplied on Tables 4 and 5. Parameters are listed alphabetically within each scan.

DISCUSSION

GENERAL

Water quality was judged by comparison with the Ontario Drinking Water Objectives publication (ODWOs). These objectives are applied to free flowing water. When an Ontario Drinking Water Objective (ODWO) was not available, guidelines/limits from other agencies were used. These guidelines were obtained from the Parameter Listing System database.

The guidelines are evaluated on the results from the free flowing samples. Standing samples in the distribution system can show elevated concentrations in certain metals if the water is corrosive or if the standing time is excessive. Flushing the tap until the water achieves the coolest temperature will ensure that the water used for consumption will contain minimum concentrations of metals.

IN THIS REPORT, DISCUSSION IS LIMITED TO:

- THE TREATED AND DISTRIBUTED WATER;
- ONLY THOSE PARAMETERS WITH CONCENTRATIONS ABOVE
GUIDELINE VALUES; AND
- POSITIVE ORGANIC PARAMETERS DETECTED.

BACTERIOLOGICAL

Guidelines for bacteriological sampling and testing of a supply are developed to maintain a proper supervision of its bacteriological quality. Routine monitoring programs usually require that multiple samples be collected in a given system. Full interpretation of bacteriological quality cannot be made on the basis of single samples. Standard plate count was the only bacteriological analysis conducted on the treated and distributed water.

Standard plate count is a test used to supplement routine analysis for coliform bacteria. The limit for standard plate count (at 35°C after 48 hours) in the ODWOs is 500 counts/mL (based on a geometric mean of 5 or more samples). DWSP bacteriological analysis of treated and distributed water was limited to standard plate count.

Standard plate count (membrane filtration) exceeded the ODWO Aesthetic Objective of 500 counts/mL in 2 of 14 treated and distributed water samples with a maximum reported value of 2,000 counts/mL.

INORGANIC & PHYSICAL

CHEMISTRY (FIELD)

Field pH was below the ODWO Recommended Operational Guideline of 6.5-8.5 pH units in 3 of 30 treated and distributed water samples with a minimum value of 6.4 pH units.

It is desirable that the temperature of drinking water be less than 15°C. The palatability of water is enhanced by its coolness. A temperature below 15°C will tend to reduce the growth of nuisance organisms and hence minimize associated taste, colour, odour and corrosion problems. The temperature of delivered water may increase in the distribution system due to the warming effect of soil in late summer and fall and/or as a result of higher temperatures in the source water.

Field temperature exceeded the ODWO Aesthetic Objective of 15°C in 12 of 30 treated and distributed water samples with a maximum reported value of 23.2°C.

CHEMISTRY (LABORATORY)

Colour in drinking water may be due to the presence of natural or synthetic substances as well as certain metallic ions. Colour is measured in Hazen units (HZU).

Colour exceeded the ODWO Aesthetic Objective of 5 HZU in 5 of 29 treated and distributed water samples with a maximum reported value of 7.0 HZU.

The ODWOs indicate that a hardness level of between 80 and 100 mg/L as calcium carbonate for domestic waters provides an acceptable balance between corrosion and encrustation. Water supplies with a hardness greater than 200 mg/L are considered poor and possess a tendency to form scale deposits and result in excessive soap consumption.

Hardness exceeded the ODWO Recommended Operational Guideline of 80-100 mg/L in all 29 treated and distributed water samples with a maximum reported value of 110 mg/L.

Potassium hydroxide was added to adjust the treated water pH before leaving the plant. This accounts for the increase in potassium levels from June 1992.

Potassium exceeded the European Economic Community Aesthetic Guideline Level of 10 mg/L in 8 of 29 treated and distributed water samples with a maximum reported value of 18.4 mg/L.

METALS

At present, there is no evidence that aluminum is physiologically harmful and no health limit for drinking water has been specified. The measure of aluminum in treated water is important to measure the efficiency of the treatment process. The ODWOs indicate that a useful guideline is to maintain a residual below 100 ug/L as aluminum in the water leaving the plant to avoid problems in the distribution system.

Aluminum exceeded the ODWO Recommended Operational Guideline of 100 ug/L in 17 of 29 treated and distributed water samples with a maximum reported value of 310 ug/L.

ORGANIC

CHLOROAROMATICS

Hexachloroethane was found at a positive level in 1 of the 21 treated and distributed water samples analyzed. The maximum observed level was 12.0 ng/L. This was below the United States Environmental Protection Agency Ambient Water Quality Criteria of 1,900 ng/L.

CHLOROPHENOLS

The results of the chlorophenol scan showed that none were detected.

PESTICIDES AND PCB

Hexachlorocyclopentadiene was found at positive levels in 6 of the 8 treated and distributed water samples analyzed. The maximum observed level was 388.0 ng/L. This was below the United States Environmental Protection Agency Ambient Water Quality Criteria of 206,000 ng/L.

PHENOLICS

The results of the phenolics test showed that none were detected above trace levels.

POLYAROMATIC HYDROCARBONS

The results of the polyaromatic hydrocarbon scan showed that none were detected.

SPECIFIC PESTICIDES

The results of the specific pesticide scan showed that none were detected.

VOLATILES

The detection of benzene, ethylbenzene, toluene and xylenes at low, trace levels may be a laboratory artifact derived from the analytical methodology. Trace levels of styrene are considered to be laboratory artifacts resulting from the sample shipping containers.

Trihalomethanes (THMs) are produced during the water treatment process and will always occur in chlorinated waters. THMs are comprised of chloroform, chlorodibromomethane and dichlorobromomethane. Bromoform occurs occasionally. Results are reported for the individual compounds as well as for total THMs. Only total THM results are discussed. Starting in 1991, samples from the distribution system were quenched with sodium thiosulphate to stop the further production of THMs in the sample bottle. This provided a more representative estimation of the THMs consumed in tap water.

Total trihalomethanes were found at positive levels in all 30 treated and distributed water samples analyzed with a maximum level of 173.3 ug/L. This was below the ODWO Maximum Acceptable Concentration of 350 ug/L.

RADIOLOGICAL

RADIONUCLIDES

There are more than 200 radionuclides, some of which occur naturally and others which originate from the activities of society. The radionuclides currently of greater interest from a health view-point are tritium, strontium-90, iodine-131, cesium-137 and radium-226. The gross beta and gross alpha determinations are suitable for preliminary screening except for tritium which must be measured separately. Radionuclides are measured in becquerels per litre (Bq/L). No results were above the available guidelines.

CONCLUSIONS

No known health related guidelines were exceeded.

The Peterborough water treatment plant, for the sample years 1991 and 1992, produced good quality water and this was maintained in the distribution system.

FIGURE 1

PETERBOROUGH WATER TREATMENT PLANT

SCHEMATIC

CHARACTERISTICS

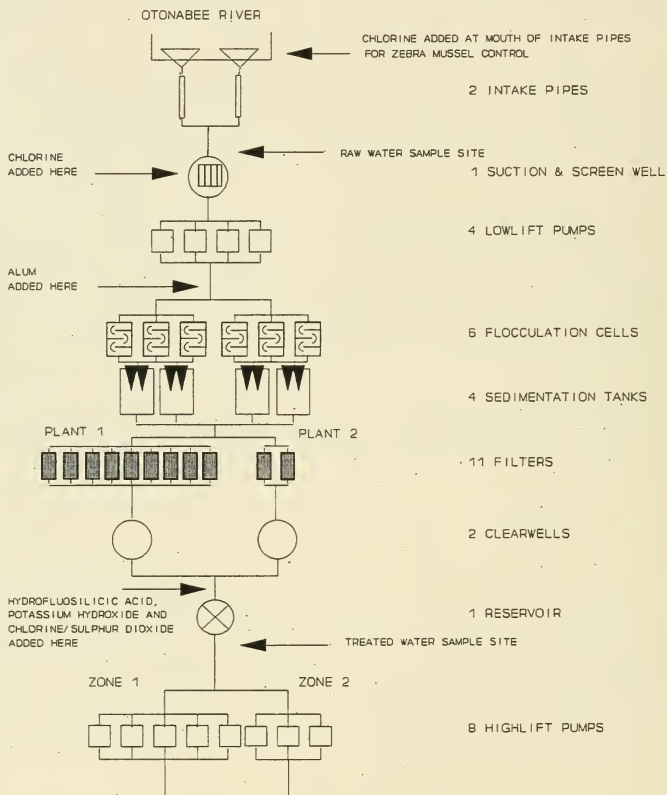


TABLE 1
DRINKING WATER SURVEILLANCE PROGRAM
PLANT GENERAL REPORT

PLANT NAME: PETERBOROUGH WSS
WORKS #: 220000497
UTM #: 177143254912925

DISTRICT: PETERBOROUGH
REGION: CENTRAL
DISTRICT OFFICER: J. BOURQUE

SUPERINTENDENT: MR. WAYNE MANLEY

ADDRESS: 1867 ASHBURNHAM DR.
PETERBOROUGH, ONTARIO
K91 1P8
705-748-9300

MUNICIPALITY: PETERBOROUGH UTILITIES COMMISSION
AUTHORITY: MUNICIPAL

PLANT INFORMATION

PLANT VOLUME:	5.000	(X 1000 M3)
DESIGN CAPACITY:	104.100	(X 1000 M3/DAY)
RATED CAPACITY:	104.100	(X 1000 M3/DAY)

MUNICIPALITY	POPULATION
-----	-----
PETERBOROUGH	68,371
WOODLAND ACRES SUBDIVISN	500

TABLE 2
DRINKING WATER SURVEILLANCE PROGRAM
IN-PLANT MONITORING

PARAMETER -----	LOCATION -----	FREQUENCY -----
FREE CHLORINE RESIDUAL	SETTLED	CONTINUOUS
TOTAL CHLORINE RESIDUAL	TREATED	CONTINUOUS
PH	RAW	EVERY 2 WEEKS
	SETTLED	EVERY 2 WEEKS
	TREATED	EVERY 2 WEEKS
TURBIDITY	RAW	2 HOURLY
	SETTLED	CONTINUOUS
	TREATED	CONTINUOUS

TABLE 3
DRINKING WATER SURVEILLANCE PROGRAM PETERBOROUGH WSS SAMPLE DAY CONDITIONS
AND TREATMENT CHEMICAL DOSAGES FOR 1991 AND 1992

DATE	DELAY * TIME(HRS)	FLOW (1000M3)	PRE CHLORINATION CHLORINE	COAGULATION ALUM LIQUID	POST CHLORINATION CHLORINE	FLUORIDATION HYDROFLUOSILICIC ACID	DECHLORINATION SULPHUR DIOXIDE	POST PH ADJUSTMENT POTASSIUM HYDROXIDE
91 FEB 12	6.00	47.723	3.50	16.50		.86	.14	
91 APR 09	6.20	44.870	3.00	33.00	.31	.85		
91 JUN 11	4.20	68.690	5.50	35.00		.92	.32	
91 AUG 13	3.42	77.280	5.00	28.60		1.15	.76	
91 OCT 16	6.15	45.960	4.50	35.00		.77	.50	
91 NOV 13	5.00	57.689	4.00	30.00		.60	.41	
92 FEB 11	6.32	43.732	3.00	30.00	.26	.82		
92 APR 14	6.28	44.187	3.50	27.40	.20	.81		
92 JUN 09	5.45	49.597	5.00	28.00		.89	.23	16.96
92 AUG 11	10.78	26.500	5.00	23.00		1.12	.39	34.67
92 OCT 14	4.00	45.233	5.00	22.60		.72	.60	22.20
92 DEC 08	6.10	46.869	3.50	35.00	.30	.90		21.70

* THE DELAY TIME BETWEEN THE RAW AND TREATED WATER SAMPLING, SHOULD ESTIMATE THE RETENTION TIME.

KEY TO TABLE 4 and 5

PARAMETER -----	A	ONTARIO DRINKING WATER OBJECTIVES (ODWO) 1. Maximum Acceptable Concentration (MAC) 1+. MAC for Total Trihalomethanes 2. Interim Maximum Acceptable Concentration (I-MAC) 3. Aesthetic Objective (AO) 3*. AO for Total Xylenes 4. Recommended Operational Guideline 5. Health Related Guidance Value
FREE CHLORINE		
TOTAL CHLORINE	B	HEALTH & WELFARE CANADA (H&W) 1. Maximum Acceptable Concentration (MAC) 2. Proposed MAC 3. Interim MAC 4. Aesthetic Objective (AO)
PH		
TURBIDITY	C	WORLD HEALTH ORGANIZATION (WHO) 1. Guideline Value (GV) 2. Tentative GV 3. Aesthetic GV
	D	US ENVIRONMENTAL PROTECTION AGENCY (EPA) 1. Maximum Contaminant Level (MCL) 2. Suggested No-Adverse Effect Level (SNAEL) 3. Lifetime Health Advisory 4. EPA Ambient Water Quality Criteria
	F	EUROPEAN ECONOMIC COMMUNITY (EEC) 1. Health Related Guideline Level 2. Aesthetic Guideline Level 3. Maximum Admissible Concentration (MADC)
	G	CALIFORNIA STATE DEPARTMENT OF HEALTH-GUIDELINE
	I	NEW YORK STATE AMBIENT WATER GUIDELINE
	N/A	NONE AVAILABLE

LABORATORY RESULTS, REMARK DESCRIPTIONS

No Sample Taken

Below Minimum Measurement Amount

Greater Than Detection Limit But Not Confident
(SEE INTERPRETATION OF RESULTS ABOVE)

Results Are Greater Than The Upper Limit

Approximate Result

No Data: Sample Age Exceeded 48 Hours

No Data: No Numeric Results

No Data: Analysis Withdrawn

No Data: Sample Broken In Transit

No Data: Contamination Suspected

No Data: Laboratory Equipment Failure

No Data: Insufficient Sample

No Data: Insufficient Sample

No Data: Laboratory Accident

No Data: No Procedure

No Data: Sample Not Received

No Data: Obscured Plate

No Data: Procedure Error: Sample Discarded

No Data: Preservative Required

No Data: Quality Control Unacceptable

No Data: Received Empty

No Data: No Numeric Results

No Data: Sample Missing

No Data: Sample Improperly Preserved

No Data: Sample Unsuitable For Analysis

No Data: Bottle Broken

No Data: Result Unreliable

!UR	No Data: Unpreserved Sample Required
A	Approximate Value
A3C	Approximate, Total Count Exceeded 300 Colonies
A>	Approximate Value, Exceeded Normal Range
APS	Additional Peak, Less Than, Not Priority Pollutant
ARO	Additional Information In Laboratory Report
CRO	Calculated Result Only
NAF	Not All Required Tests Found
RID	Ioncal Calculated on Incomplete Data Set
RMP	P and M-Xylene Not Separated
RRR	Result Obtained by Repeat Analysis
RRV	Rerun Verification
SFA	Sample Filtered: Filtrate Analyzed
SIL	Sample Incorrectly Labelled
SPS	Several Peaks, Small, Not Priority Pollutant
U48	Unreliable: Sample Age Exceeded 48 Hours
UAL	Unreliable: Sample Age Exceeded Limit
UAU	Unreliable: Sample Age Unknown
UCS	Unreliable: Contamination Suspected
WSD	Wrong Sample Description On Bottle

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH WSS

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM MONTICALLY DR FREE FLOW	DIST. SYSTEM MONTICALLY DR STANDING	DIST. SYSTEM HAROLD DR FREE FLOW	DIST. SYSTEM HAROLD DR STANDING
BACTERIOLOGICAL					
FECAL COLIFORM MF (CT/100ML)		DET'M LIMIT = 0		GUIDELINE = 0 (A1)	
1991 FEB	BOL				
1991 APR	0				
1991 JUN	16 A3C				
1991 AUG	20				
1991 OCT	10				
1991 NOV	8				
1992 FEB	2				
1992 APR	6				
1992 AUG	37 A3C				
1992 OCT	24				
1992 DEC	2				
STANDARD PLATE CNT MF (CT/ML)					
		DET'M LIMIT = 0		GUIDELINE = 500 (A3)	
1991 FEB		6 <=>	1 <=>		2 <=>
1991 APR		0 <=>	0 <=>		1 <=>
1991 JUN		1 <=>	0 <=>		2000
1991 AUG		106	1A1		800
1991 OCT		0 <=>	0 <=>		2 <=>
1991 NOV		0 <=>	0 <=>		0 <=>
1992 FEB		0 <=>	0 <=>		0 <=>
1992 APR		0 <=>	0 <=>		2 <=>
1992 JUN		0 <=>	0 <=>		2 <=>
1992 AUG		1 <=>	1 <=>		22
1992 OCT		4 <=>	4 <=>		0 <=>
1992 DEC		0 <=>	0 <=>		0 <=>
TOTAL COLIFORM MF (CT/100ML)					
		DET'M LIMIT = 0		GUIDELINE = 5/100ML (A1)	
1991 FEB	20 <=>				
1991 APR	40 <=>				
1991 JUN	100 A3C				
1991 AUG	60 <=>				
1991 OCT	BOL				
1991 NOV	18 <=>				
1992 FEB	30 <=>				
1992 APR	180 A3C				
1992 AUG	170 A3C				
1992 OCT	20 <=>				
1992 DEC	90 <=>				

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH WSS

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM MONTICM DR FREE FLOW	DIST. SYSTEM MONTICM DR STANDING	DIST. SYSTEM HAROLD DR FREE FLOW	DIST. SYSTEM HAROLD DR STANDING
BACTERIOLOGICAL					
T COLIFORM BCGRD MF (CT/100ML)		DET'N LIMIT = 0	GUIDELINE = N/A		
1991 FEB	210 U48				
1991 APR	2600				
1991 JUN	17000 A3C				
1991 AUG	24000 >				
1991 OCT	21000 A3C				
1991 NOV	15909 A3C				
1992 FEB	1410				
1992 APR	3800 A3C				
1992 AUG	20000 A3C				
1992 OCT	23000 A3C				
1992 DEC	410				

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH WSS

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM MONTICALLY OR FREE FLOW	DIST. SYSTEM MONTICALLY OR STANDING	DIST. SYSTEM HARDLO OR FREE FLOW	DIST. SYSTEM HARDLO OR STANDING
CHEMISTRY (FIELD)					
FLD CHLORINE (COMB) (MG/L)		DET'N LIMIT = 0			
		GUIDELINE = N/A			
1991 FEB	.200	.200	.400	.200	.100
1991 APR	.160	.200	.200	.100	.000
1991 JUN	.230	.400	.400	.000	.000
1991 AUG	.230	.400	.800	.100	.000
1991 OCT	.220	.200	.200	.100	.100
1991 NOV	.280	.200	.000	.200	.100
1992 FEB	.220	.200	.000	.200	.000
1992 APR	.210	.	.	.200	.100
1992 JUN	.200	.	.	.200	.000
1992 AUG	.	.	.	.200	.000
1992 OCT	.210	.	.	.200	.000
1992 DEC	.170	.	.	.100	.200
FLD CHLORINE FREE (MG/L)		DET'N LIMIT = 0			
		GUIDELINE = N/A			
1991 FEB	1.200	1.300	.300	.200	.100
1991 APR	1.250	1.300	.500	.200	.100
1991 JUN	1.250	1.100	.700	.100	.100
1991 AUG	1.250	1.100	.300	.200	.100
1991 OCT	1.250	1.100	.300	.100	.100
1991 NOV	1.250	.100	.100	.100	.000
1992 FEB	1.250	.100	.100	.100	.200
1992 APR	1.190	.	.	.300	.200
1992 JUN	1.200	.	.	.100	.100
1992 AUG	1.800	.	.	.200	.200
1992 OCT	1.310	.	.	.200	.100
1992 DEC	.	.	.	.	.
FLD CHLORINE (TOTAL) (MG/L)		DET'N LIMIT = 0			
		GUIDELINE = N/A			
1991 FEB	1.400	1.500	.700	.400	.200
1991 APR	1.410	1.500	.700	.300	.100
1991 JUN	1.350	1.500	1.100	.100	.100
1991 AUG	1.460	1.500	1.100	.300	.100
1991 OCT	1.450	1.500	.500	.200	.200
1991 NOV	1.600	.300	.100	.300	.100
1992 FEB	1.450	.	.	.300	.300
1992 APR	1.400	.	.	.300	.200
1992 JUN	1.400	.	.	.300	.100
1992 AUG	2.010	.	.	.300	.200
1992 OCT	1.460	.	.	.300	.300
1992 DEC	.	.	.	.	.

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH WSS

CHEMISTRY (FIELD)

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM MONTCALM OR FREE FLOW	DIST. SYSTEM MONTCALM OR STANDING	DIST. SYSTEM FREE FLOW	DIST. SYSTEM HAROLD OR STANDING
FLO PH (OMNSLESS)		DET'N LIMIT = N/A	GUIDELINE = 6.5-8.5 (A4)		
1991 FEB	7.600	6.800	7.200	7.200	7.100
1991 APR	7.600	6.600	7.000	7.000	7.200
1991 JUN	7.800	6.500	7.000	6.800	6.800
1991 AUG	7.950	6.470	7.000	6.800	6.800
1991 OCT	7.750	6.450	6.800	7.000	6.800
1991 NOV	7.700	6.400	6.800	6.700	6.800
1992 FEB	7.700	6.500	6.800	7.200	6.800
1992 APR	7.500	6.650	-	6.800	6.800
1992 JUN	7.800	7.250	-	7.400	7.400
1992 AUG	7.860	8.080	-	7.500	7.500
1992 OCT	7.700	7.900	-	7.800	7.500
1992 DEC	7.900	7.900	-	7.800	7.500

FLO TEMPERATURE (DEG.C)

		DET'N LIMIT = N/A	GUIDELINE = 15 (A3)		
1991 FEB	100	2.200	11.500	5.000	18.500
1991 APR	6.100	7.000	15.000	9.500	21.000
1991 JUN	23.300	21.000	20.000	18.000	21.000
1991 AUG	22.700	22.000	20.000	21.000	23.000
1991 OCT	12.000	14.000	17.000	16.000	20.000
1991 NOV	4.200	4.200	19.000	12.000	20.500
1992 FEB	100	4.500	19.000	4.500	19.000
1992 APR	3.200	3.200	-	7.000	19.000
1992 JUN	18.800	18.900	-	15.500	17.500
1992 AUG	20.600	19.200	-	19.000	22.000
1992 OCT	12.900	13.000	-	16.000	20.000
1992 DEC	1.800	1.900	-	11.000	21.000

FLO TURBIDITY (FTU)

		DET'N LIMIT = N/A	GUIDELINE = 1.0 (A1)		
1991 FEB	340	.320	.380	.420	.840
1991 APR	.720	.100	.210	.260	.480
1991 JUN	.950	.190	.250	.220	.420
1991 AUG	1.340	.130	.140	.170	.160
1991 OCT	.850	.050	.110	.170	.200
1991 NOV	.420	.130	.140	.300	.380
1992 FEB	.300	.060	.160	.160	.160
1992 APR	.440	.130	-	.110	.190
1992 JUN	.840	.080	-	.270	.430
1992 AUG	1.880	.140	-	.200	.330
1992 OCT	1.380	.100	-	-	-
1992 DEC	1.150	.040	-	-	-

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH WSS

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	CHEMISTRY (LABORATORY)				DIST. SYSTEM MONTICM DR FREE FLOW				DIST. SYSTEM MONTICM DR FREE FLOW				DIST. SYSTEM HAROLD DR STANDING			
		ALKALINITY (MG/L)	DET'N LIMIT = 0.2			DET'N LIMIT = 0.2			DET'N LIMIT = 0.2			DET'N LIMIT = 0.2			DET'N LIMIT = 0.2		
GUIDELINE = 30-500 (A4)																	
1991 FEB	84,500	69,200	69,900	68,500	69,600	69,000	68,500	68,500	69,600	69,000	68,500	68,500	69,600	69,000	68,500	69,000	
1991 APR	81,400	59,900	58,300	58,300	60,500	59,900	58,300	58,300	60,500	59,900	58,300	58,300	60,500	59,900	58,300	59,900	
1991 JUN	92,000	66,300	67,500	67,300	67,800	66,300	67,500	67,300	67,800	66,300	67,500	67,300	67,800	66,300	67,500	66,100	
1991 AUG	87,800	62,500	63,600	63,600	64,100	62,500	63,600	63,600	64,100	63,000	64,100	63,600	64,100	63,300	64,100	63,300	
1991 OCT	75,700	51,300	50,400	51,100	53,800	51,300	50,400	51,100	53,800	55,900	53,800	51,100	53,800	55,900	53,800	55,900	
1991 NOV	71,300	49,300	49,600	49,600	49,600	49,300	49,600	49,600	49,600	47,200	49,600	49,600	49,600	47,200	49,600	47,200	
1992 FEB	83,200	56,400	64,400	64,400	64,400	56,400	64,400	64,400	64,400	63,500	64,400	64,400	64,400	63,500	64,400	63,500	
1992 APR	78,000	58,800	60,700	60,700	60,700	58,800	60,700	60,700	60,700	59,900	60,700	60,700	60,700	59,900	60,700	59,900	
1992 JUN	81,300	75,500	75,500	75,500	75,500	75,500	75,500	75,500	75,500	74,600	75,500	75,500	74,600	74,600	74,600	74,400	
1992 AUG	80,500	79,300	79,300	79,300	79,300	79,300	79,300	79,300	79,300	78,000	79,300	79,300	78,000	79,700	79,300	79,700	
1992 OCT	74,900	73,300	73,300	73,300	73,300	73,300	73,300	73,300	73,300	75,100	73,300	73,300	75,100	74,200	73,300	74,200	
1992 DEC	74,800	68,900	68,900	68,900	68,900	68,900	68,900	68,900	68,900	69,700	68,900	68,900	68,900	69,700	68,900	69,700	
GUIDELINE = 100 (F2)																	
1991 FEB	34,300	34,600	34,900	34,900	34,500	34,900	34,900	34,900	34,500	34,300	34,900	34,900	34,500	34,300	34,900	34,300	
1991 APR	30,800	30,900	31,200	31,400	31,200	31,200	31,200	31,400	31,200	30,800	31,200	31,400	31,200	30,800	31,200	33,000	
1991 JUN	39,000	38,400	38,000	39,400	38,000	38,000	38,000	39,400	38,000	39,600	39,400	39,400	39,600	39,600	39,400	39,600	
1991 AUG	34,500	34,200	34,200	33,500	34,200	34,200	34,200	33,500	34,200	33,100	34,200	33,500	33,100	34,500	34,200	34,500	
1991 OCT	29,200	29,600	29,300	29,400	29,300	29,400	29,300	29,400	29,300	30,700	29,400	29,400	30,700	30,700	29,400	30,700	
1991 NOV	26,900	26,900	26,900	26,860	26,900	26,900	26,900	26,860	26,900	27,500	26,900	26,860	27,500	27,500	26,900	27,500	
1992 FEB	31,500	31,900	31,900	31,200	31,500	31,900	31,900	31,200	31,500	32,200	31,900	31,200	32,200	32,200	31,900	32,200	
1992 APR	33,000	32,850	33,000	33,400	33,000	33,000	33,000	33,400	33,000	33,400	33,000	33,400	33,400	33,400	33,000	33,400	
1992 JUN	32,200	32,500	32,500	32,500	32,500	32,500	32,500	32,500	32,500	32,950	32,500	32,500	32,950	32,950	32,500	32,950	
1992 AUG	32,200	32,700	32,700	32,700	32,700	32,700	32,700	32,700	32,700	30,200	32,700	32,700	30,200	30,200	32,700	30,200	
1992 OCT	23,000	29,900	29,900	29,900	29,900	29,900	29,900	29,900	29,900	29,700	29,900	29,900	29,700	29,700	29,900	29,700	
1992 DEC	29,750	29,750	29,750	29,750	29,750	29,750	29,750	29,750	29,750	30,050	29,750	29,750	30,050	30,050	29,750	30,050	
GUIDELINE = 0.2 (A1)																	
CYANIDE (MG/L)																	
18 SAMPLES	BDL	BDL															

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH WSS

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM MONTICLOM DR FREE FLOW	DIST. SYSTEM MONTICLOM DR STANDING	DIST. SYSTEM FREE FLOW	DIST. SYSTEM HAROLD DR STANDING
CHEMISTRY (LABORATORY)					
CHLORIDE (MG/L)		DET'N LIMIT = 0.20	GUIDELINE = 250 (A3)		
1991 FEB	7.700	10.800	10.900	10.800	11.300
1991 APR	1.900	10.300	10.400	10.400	10.800
1991 JUN	7.600	12.000	12.400	12.200	12.400
1991 AUG	7.000	11.500	11.600	11.500	11.700
1991 OCT	7.100	10.800	10.700	11.000	11.200
1991 NOV	7.700	11.000	10.700	11.200	11.600
1992 FEB	8.100	10.600	10.700	10.700	10.900
1992 APR	9.400	13.200	-	12.400	12.700
1992 JUN	8.700	12.800	-	13.100	13.200
1992 AUG	8.200	13.000	-	13.400	13.600
1992 OCT	8.200	12.700	-	13.000	13.400
1992 DEC	8.000	10.900	-	10.900	11.300
COLOUR (HZU)		DET'N LIMIT = 0.50	GUIDELINE = 5 (A3)		
1991 FEB	20.000	5.000	6.000	7.000	8.500
1991 APR	18.000	2.000	2.500	3.500	4.500
1991 JUN	17.000	3.500	4.000	5.000	5.500
1991 AUG	11.000	2.500	3.000	4.000	5.500
1991 OCT	11.000	1.500	2.000	4.000	4.500
1991 NOV	10.500	2.500	1.500	6.000	4.500
1992 FEB	12.500	2.000	-	4.500	5.000
1992 APR	17.000	3.000	-	6.500	5.500
1992 JUN	15.000	3.000	-	4.000	4.000
1992 AUG	12.000	5.500	-	3.000	3.000
1992 OCT	13.000	3.000	-	3.500	4.000
1992 DEC	17.000	2.000	-	3.000	3.000
CONDUCTIVITY (UMHO/CM)		DET'N LIMIT = 1.0	GUIDELINE = 400 (F2)		
1991 FEB	213	223	221	221	228
1991 APR	203	214	213	218	223
1991 JUN	218	232	234	232	239
1991 AUG	207	219	220	218	225
1991 OCT	186	198	198	200	210
1991 NOV	184	194	-	195	205
1992 FEB	212	225	-	222	224
1992 APR	214	223	-	225	229
1992 JUN	211	260	-	256	259
1992 AUG	205	247	-	266	266
1992 OCT	194	243	-	245	253
1992 DEC	193	254	-	250	254

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH WSS

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM MONTICALLY DR FREE FLOW	DIST. SYSTEM STANDING	DIST. SYSTEM HAROLD DR FREE FLOW	DIST. SYSTEM HAROLD DR STANDING
CHEMISTRY (LABORATORY)					
DISS ORG CARBON (MG/L)		DET'N LIMIT = 0.10	GUIDELINE = 5.0 (A3)		
1991 FEB	5.700	4.400	4.500	4.500	4.500
1991 APR	5.400	3.300	2.800	3.000	3.000
1991 JUN	5.300	3.700	3.600	3.400	3.400
1991 AUG	5.000	3.700	3.600	3.300	3.300
1991 OCT	5.100	3.100	2.800	3.000	3.000
1991 NOV	5.300	3.500	3.200	3.100	3.100
1992 FEB	5.100	2.900	3.200	3.300	3.300
1992 APR	4.900	3.300	3.400	3.200	3.200
1992 JUN	4.500	3.200	2.900	3.000	3.000
1992 AUG	5.000	4.000	3.200	3.300	3.300
1992 OCT	5.200	3.700	3.300	3.300	3.300
1992 DEC	5.800	3.000	3.000	3.400	3.400
FLUORIDE (MG/L)					
		DET'N LIMIT = 0.01	GUIDELINE = 1.5 (A1)		
1991 FEB	.060	1.140	1.200	1.060	1.120
1991 APR	.060	1.000	1.060	1.020	1.100
1991 JUN	.060	1.160	1.120	1.120	1.120
1991 AUG	.040 <T	1.080	1.060	1.080	1.040
1991 OCT	.060	1.120	1.040	.940	.920
1991 NOV	.060	1.240	-	1.040	.880
1992 FEB	.080	.900	-	.960	1.040
1992 APR	.040 <T	.880	-	.800	.900
1992 JUN	.080	1.040	-	.920	.940
1992 AUG	.080	1.080	-	1.020	1.020
1992 OCT	.040 <T	1.080	-	1.000	1.020
1992 DEC	.100	.980	-	.940	.960
HARDNESS (MG/L)					
		DET'N LIMIT = 0.5	GUIDELINE = 80-100 (A4)		
1991 FEB	99.400	100.200	100.900	99.700	99.400
1991 APR	88.600	98.500	99.400	88.700	94.700
1991 JUN	108.000	108.000	112.000	111.000	111.000
1991 AUG	97.500	97.500	92.700	95.000	98.200
1991 OCT	86.700	85.200	85.400	88.100	88.400
1991 NOV	80.100	80.100	-	81.000	81.800
1992 FEB	93.400	94.200	-	92.500	94.900
1992 APR	94.080	95.900	-	97.170	95.970
1992 JUN	93.000	93.000	-	95.000	96.000
1992 AUG	92.970	94.300	-	93.700	94.760
1992 OCT	87.000	87.000	-	86.000	88.000
1992 DEC	87.030	86.870	-	86.860	87.790

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH WSS

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM MONTICALLY DR FREE FLOW	DIST. SYSTEM STANDING	DIST. SYSTEM HAROLD DR FREE FLOW	DIST. SYSTEM HAROLD DR STANDING
CHEMISTRY (LABORATORY)					
IONICAL (OMNSLESS)		DET'N LIMIT = N/A	GUIDELINE = N/A		
1991 FEB	826	3.043	3.869	2.254	1.206
1991 APR	3.261 NAF	3.294	3.869	2.254	1.206
1991 JUN	6.216 NAF	2.735 NAF	3.869	2.254	1.206
1991 AUG	1.090	8.288 NAF	3.869	2.254	1.206
1991 OCT	1.090	1.280	3.869	2.254	1.206
1991 NOV	1.090	3.413	3.869	2.254	1.206
1992 FEB	2.924	2.745	3.869	2.254	1.206
1992 APR	1.191 NAF	883 NAF	3.869	2.254	1.206
1992 JUN	3.598	723	3.869	2.254	1.206
1992 AUG	214	214	3.869	2.254	1.206
1992 OCT	4.548	633	3.869	2.254	1.206
1992 DEC	047	1.079	3.869	2.254	1.206
POTASSIUM (MG/L)		DET'N LIMIT = 0.01	GUIDELINE = 10 (F2)		
1991 FEB	1.070	1.010	1.100	1.090	1.070
1991 APR	1.090	1.070	1.120	1.110	1.110
1991 JUN	1.050	1.100	1.200	1.150	1.050
1991 AUG	890	880	950	930	880
1991 OCT	960	980	970	1.020	1.020
1991 NOV	870	880	970	860	950
1992 FEB	1.100	1.140	1.100	1.090	1.150
1992 APR	1.199	1.210	1.217	1.229	1.229
1992 JUN	1.000	15.200	12.000	12.000	11.700
1992 AUG	930	12.636	18.456	18.456	17.748
1992 OCT	920	15.600	16.300	16.300	16.300
1992 DEC	967	18.204	16.818	16.818	16.806
LANGELIERS INDEX (OMNSLESS)		DET'N LIMIT = N/A	GUIDELINE = N/A		
1991 FEB	.237	.120	.060	.058	.137
1991 APR	.138 NAF	.468 NAF	.404 NAF	.447 NAF	.353 NAF
1991 JUN	.338	.427	.100	.300	.247
1991 AUG	.259	.217	.049	.110	.130
1991 OCT	.010	.711	.572	.626	.539
1991 NOV	.009	.355	.209	.273	.529
1992 FEB	.294	.405	.209	.165	.209
1992 APR	.235	.113	.209	.087	.176
1992 JUN	.296	.205	.209	.293	.252
1992 AUG	.202	.054	.209	.059 NAF	.104 NAF
1992 OCT	.041	.054	.209	.146	.030
1992 DEC	.090	.229	.209	.218	.220

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH WSS

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM MONTICM DR FREE FLOW	DIST. SYSTEM STANDING	DIST. SYSTEM HAROLD DR FREE FLOW	DIST. SYSTEM HAROLD DR STANDING
CHEMISTRY (LABORATORY)					
MAGNESIUM (MG/L)					
		DET'N LIMIT = 0.1	GUIDELINE = 30.0 (F2)		
1991 FEB	3.300	3.350	3.350	3.300	3.350
1991 APR	2.850	2.800	2.950	2.850	3.000
1991 JUN	3.000	3.200	3.200	3.100	3.000
1991 AUG	3.000	3.020	2.950	2.970	2.950
1991 OCT	2.900	2.900	2.900	2.950	2.900
1991 NOV	3.150	*	*	3.380	3.200
1992 FEB	3.550	3.550	*	3.550	3.500
1992 APR	3.510	3.370	*	3.350	3.320
1992 JUN	2.960	*	*	2.950	2.960
1992 AUG	3.040	3.060	*	3.030	3.020
1992 OCT	8.570	2.950	*	2.970	2.990
1992 DEC	3.090	3.070	*	3.080	3.110
SODIUM (MG/L)					
		DET'N LIMIT = 0.20	GUIDELINE = 200 (M4)		
1991 FEB	4.300	4.200	4.200	4.100	4.400
1991 APR	4.400	4.500	4.500	4.600	4.400
1991 JUN	3.800	3.800	4.200	3.800	3.600
1991 AUG	3.600	3.700	3.700	3.800	3.900
1991 OCT	4.100	4.200	4.100	4.100	4.200
1991 NOV	4.400	4.400	4.290	4.400	4.400
1992 FEB	4.700	4.800	4.600	4.600	4.700
1992 APR	5.230	5.200	5.360	5.330	5.330
1992 JUN	4.260	4.260	4.750	4.680	4.680
1992 AUG	4.580	4.580	5.060	5.060	4.840
1992 OCT	4.490	4.400	4.380	4.380	4.570
1992 DEC	4.250	4.290	4.300	4.300	4.450
AMMONIUM TOTAL (MG/L)					
		DET'N LIMIT = 0.002	GUIDELINE = 0.05 (F2)		
1991 FEB	.028	BOL	.026	BOL	.532
1991 APR	.012	.002 <T	.058	.004 <T	.344
1991 JUN	.036	.004 <T	.010	.006 <T	.700
1991 AUG	.040	.002 <T	.004 <T	.008 <T	.334
1991 OCT	.010	.002 <T	.018	.008 <T	.868
1991 NOV	.076	.002 <T	*	.010	.452
1992 FEB	.020	.004 <T	*	.004 <T	.126
1992 APR	.042	.006 <T	*	.008 <T	.442
1992 JUN	.002 <T	.008 <T	*	.010	.694
1992 AUG	.024	.002 <T	*	.006 <T	.328
1992 OCT	.012	.004 <T	*	.008 <T	.104
1992 DEC	.020	.004 <T	*	.008 <T	

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH WSS

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	CHEMISTRY (LABORATORY)				DIST. SYSTEM MONTICALLY STANDING	DIST. SYSTEM FREE FLOW	DIST. SYSTEM HAROLD OR STANDING
		NITRITE (MG/L)	NITRATE (MG/L)	DET'N LIMIT = 0.001	GUIDELINE = 1.0 (A1)			
1991 FEB	.005	.005	.001 <T	.001 <T	.001 <T	.002 <T		
1991 APR	.003 <T	BOL	BOL	.002 <T	BOL	.001 <T		
1991 JUN	.004 <T	BOL	BOL	.001 <T	.001 <T	.001 <T		
1991 AUG	.001 <T	BOL	BOL	.001 <T	.001 <T	.001 <T		
1991 OCT	.001 <T	BOL	BOL	.001 <T	BOL	BOL		
1991 NOV	.003 <T	.001 <T	.001 <T	.002 <T	.002 <T	.001 <T		
1992 FEB	.011	.001 <T	.001 <T	.004 <T	.004 <T	.004 <T		
1992 APR	.014	.003 <T	.003 <T	.006	.006	.005		
1992 JUN	.043	.001 <T	.001 <T	.003 <T	.003 <T	.003 <T		
1992 AUG	.005	.004 <T	.004 <T	.008	.008	.005		
1992 OCT	.004 <T	.002 <T	.002 <T	.002 <T	.002 <T	.003 <T		
1992 DEC	.003 <T	BOL	BOL	BOL	BOL	.001 <T		
NITRATE (TOTAL) (MG/L)								
1991 FEB	.165	.155	.155	DET'N LIMIT = 0.005	GUIDELINE = 10.0 (A1)	.885		
1991 APR	.225	.225	.225	.190	.155	.850		
1991 JUN	.065	.055	.055	.265	.225	.1.040		
1991 AUG	.010 <T	.005 <T	.005 <T	.130	.060	.530		
1991 OCT	.015 <T	.015 <T	.020 <T	.025	.005 <T	.970		
1991 NOV	.040	.035	.035	.030	.020 <T	.585		
1992 FEB	.085	.075	.075	.080	.255	.255		
1992 APR	.335	.325	.325	.370	.900	.900		
1992 JUN	.130	.090	.090	.085	.085	.760		
1992 AUG	.025	.030	.030	.035	.035	.040		
1992 OCT	.040	.035	.035	.030	.030	.685		
1992 DEC	.080	.080	.080	.075	.345	.345		
NITROGEN TOT KJELD (MG/L)								
1991 FEB	.330	.290	.270	DET'N LIMIT = 0.02	GUIDELINE = N/A	.780		
1991 APR	.320	.170	.150	.350	.230	.530		
1991 JUN	.410	.250	.250	.340	.140	.980		
1991 AUG	.440	.220	.240	.310	.260	.580		
1991 OCT	.410	.190	.210	.290	.220	1.050		
1991 NOV	.490	.260	.260	.330	.220	.780		
1992 FEB	.360	.230	.230	.200	.260	.350		
1992 APR	.370	.230	.230	.270	.270	.740		
1992 JUN	.330	.190	.190	.190	.190	.800		
1992 AUG	.420	.270	.270	.240	.250	.250		
1992 OCT	.430	.270	.270	.250	.250	.750		
1992 DEC	.420	.190	.190	.210	.210	.400		

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH NSS

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM MONTICALL DR		DIST. SYSTEM MONTICALL DR		DIST. SYSTEM HAROLD DR		DIST. SYSTEM HAROLD DR	
		FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING
METALS									
SILVER (UG/L)									
DET'N LIMIT = 0.05									
GUIDELINE = N/A									
1991 FEB	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 APR	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 JUN	BDL	.210 <T	BDL	.090 <T	BDL	BDL	BDL	BDL	BDL
1991 AUG	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 OCT	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 NOV	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 FEB	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 APR	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 JUN	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 AUG	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 OCT	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 DEC	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
ALUMINUM (UG/L)									
DET'N LIMIT = 0.10									
GUIDELINE = 100 (A4)									
1991 FEB	8.100	280.000	310.000	220.000	260.000	370.000	370.000	370.000	370.000
1991 APR	16.000	80.000	56.000	67.000	60.000	72.000	72.000	72.000	72.000
1991 JUN	12.000	140.000	130.000	130.000	100.000	140.000	140.000	140.000	140.000
1991 AUG	14.000	120.000	110.000	110.000	85.000	80.000	80.000	80.000	80.000
1991 OCT	6.400	51.000	51.000	57.000	53.000	53.000	53.000	53.000	53.000
1991 NOV	16.000	220.000	220.000	220.000	130.000	69.000	69.000	69.000	69.000
1992 FEB	5.300	40.000	40.000	40.000	82.000	71.000	71.000	71.000	71.000
1992 APR	49.000	150.000	150.000	150.000	110.000	100.000	100.000	100.000	100.000
1992 JUN	12.000	130.000	130.000	130.000	110.000	120.000	120.000	120.000	120.000
1992 AUG	22.000	240.000	240.000	240.000	150.000	150.000	150.000	150.000	150.000
1992 OCT	10.000	160.000	160.000	160.000	110.000	130.000	130.000	130.000	130.000
1992 DEC	14.000	49.000	49.000	49.000	44.000	78.000	78.000	78.000	78.000
ARSENIC (UG/L)									
DET'N LIMIT = 0.10									
GUIDELINE = 25 (A1)									
1991 FEB	.160 <T	.790 <T	.650 <T	.620 <T	.480 <T	.690 <T	.690 <T	.690 <T	.690 <T
1991 APR	.170 <T	.590 <T	.700 <T	.590 <T	.450 <T	.490 <T	.490 <T	.490 <T	.490 <T
1991 JUN	.360 <T	.620 <T	.380 <T	.600 <T	.660 <T	.820 <T	.820 <T	.820 <T	.820 <T
1991 AUG	.360 <T	.450 <T	.610 <T	.350 <T	.320 <T	.460 <T	.460 <T	.460 <T	.460 <T
1991 OCT	.480 <T	.510 <T	.570 <T	.540 <T	.440 <T	.510 <T	.510 <T	.510 <T	.510 <T
1991 NOV	.370 <T	.660 <T	.660 <T	.660 <T	.610 <T	.390 <T	.390 <T	.390 <T	.390 <T
1992 FEB	.300 <T	.680 <T	.680 <T	.680 <T	.490 <T	.490 <T	.490 <T	.490 <T	.490 <T
1992 APR	.180 <T	.290 <T	.290 <T	.290 <T	.210 <T	.370 <T	.370 <T	.370 <T	.370 <T
1992 JUN	.370 <T	.770 <T	.770 <T	.770 <T	.680 <T	.880 <T	.880 <T	.880 <T	.880 <T
1992 AUG	.380 <T	.380 <T	.380 <T	.380 <T	.860 <T	.850 <T	.850 <T	.850 <T	.850 <T
1992 OCT	.370 <T	.770 <T	.770 <T	.770 <T	.730 <T	.780 <T	.780 <T	.780 <T	.780 <T
1992 DEC	.120 <T	.210 <T	.210 <T	.210 <T	.230 <T	.240 <T	.240 <T	.240 <T	.240 <T

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH WSS

METALS									
BARIUM (UG/L)		DET'N LIMIT = 0.05				GUIDELINE = 1000 (A2)			
1991 FEB	30,000	28,000	28,000	29,000	28,000	30,000	28,000	30,000	30,000
1991 APR	30,000	28,000	27,000	30,000	28,000	30,000	28,000	32,000	32,000
1991 JUN	29,000	32,000	32,000	32,000	32,000	32,000	32,000	32,000	32,000
1991 AUG	27,000	26,000	26,000	26,000	25,000	26,000	25,000	27,000	27,000
1991 OCT	25,000	25,000	25,000	26,000	26,000	26,000	26,000	26,000	26,000
1991 NOV	27,000	26,000	*	*	25,000	29,000	25,000	29,000	29,000
1992 FEB	30,000	28,000	*	*	29,000	31,000	29,000	31,000	31,000
1992 APR	31,000	32,000	*	*	29,000	34,000	29,000	34,000	34,000
1992 JUN	29,000	28,000	*	*	28,000	28,000	28,000	28,000	28,000
1992 AUG	29,000	26,000	*	*	27,000	26,000	26,000	26,000	26,000
1992 OCT	33,000	31,000	*	*	28,000	29,000	28,000	29,000	29,000
1992 DEC	28,000	27,000	*	*	25,000	27,000	27,000	27,000	27,000
BORON (UG/L)		DET'N LIMIT = 2.00				GUIDELINE = 5000 (A1)			
1991 FEB	9,800 <T	7,400 <T	10,000 <T	10,000 <T	7,600 <T	7,600 <T	7,600 <T	7,000 <T	7,000 <T
1991 APR	12,000 <T	11,000 <T	12,000 <T	15,000 <T	9,300 <T	9,300 <T	9,300 <T	6,800 <T	6,800 <T
1991 JUN	7,900 <T	7,800 <T	7,200 <T	11,000 <T	7,100 <T	7,100 <T	7,100 <T	8,200 <T	8,200 <T
1991 AUG	9,900 <T	9,200 <T	9,600 <T	10,000 <T	8,800 <T	8,800 <T	8,800 <T	9,800 <T	9,800 <T
1991 OCT	19,000 <T	19,000 <T	15,000 <T	18,000 <T	14,000 <T	14,000 <T	14,000 <T	13,000 <T	13,000 <T
1991 NOV	15,000 <T	15,000 <T	*	*	15,000 <T	15,000 <T	15,000 <T	10,000 <T	10,000 <T
1992 FEB	11,000 <T	9,500 <T	*	*	8,800 <T	8,800 <T	8,800 <T	7,100 <T	7,100 <T
1992 APR	9,800 <T	7,500 <T	*	*	7,800 <T	7,800 <T	7,800 <T	9,000 <T	9,000 <T
1992 JUN	10,000 <T	9,600 <T	*	*	24,000	24,000	24,000	24,000	24,000
1992 AUG	9,800 <T	11,000 <T	*	*	13,000 <T	13,000 <T	13,000 <T	11,000 <T	11,000 <T
1992 OCT	13,000 <T	13,000 <T	*	*	9,800 <T	9,800 <T	9,800 <T	9,700 <T	9,700 <T
1992 DEC	9,700 <T	9,500 <T	*	*	9,800 <T	9,800 <T	9,800 <T	9,700 <T	9,700 <T
BERYLLIUM (UG/L)		DET'N LIMIT = 0.05				GUIDELINE = 6800 (D4)			
1991 FEB	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 APR	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 JUN	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 AUG	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 OCT	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 NOV	BDL	BDL	*	*	BDL	BDL	BDL	BDL	BDL
1992 FEB	BDL	BDL	*	*	BDL	BDL	BDL	BDL	BDL
1992 APR	BDL	BDL	*	*	BDL	BDL	BDL	BDL	BDL
1992 JUN	BDL	BDL	*	*	BDL	BDL	BDL	BDL	BDL
1992 AUG	BDL	BDL	*	*	BDL	BDL	BDL	BDL	BDL
1992 OCT	BDL	BDL	*	*	BDL	BDL	BDL	BDL	BDL
1992 DEC	BDL	BDL	*	*	BDL	BDL	BDL	BDL	BDL

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH WSS

TREATMENT PLANT RAW		TREATMENT PLANT TREATED	DIST. SYSTEM, PORTCALM DR FREE FLOW	DIST. SYSTEM, PORTCALM DR STANDING	DIST. SYSTEM, HAROLD DR FREE FLOW	DIST. SYSTEM, HAROLD DR STANDING
METALS						
CADMIUM (UG/L)						
			DET'N LIMIT = 0.05			
			GUIDELINE = 5.0 (A1)			
1991 FEB	.160 <T	BOL	BOL	BOL	BOL	.080 <T
1991 APR	BOL	BOL	BOL	BOL	BOL	.070 <T
1991 JUN	BOL	BOL	BOL	BOL	BOL	BOL
1991 AUG	BOL	BOL	BOL	BOL	BOL	.100 <T
1991 OCT	BOL	BOL	BOL	BOL	BOL	.500 <T
1991 NOV	BOL	BOL	BOL	BOL	BOL	.230 <T
1992 FEB	BOL	BOL	BOL	BOL	BOL	.070 <T
1992 APR	.070 <T	BOL	BOL	BOL	BOL	.170 <T
1992 JUN	BOL	BOL	BOL	BOL	BOL	.090 <T
1992 AUG	BOL	BOL	BOL	BOL	BOL	BOL
1992 OCT	BOL	BOL	BOL	BOL	BOL	.350 <T
1992 DEC	BOL	BOL	BOL	BOL	BOL	.130 <T
COBALT (UG/L)						
			DET'N LIMIT = 0.02			
			GUIDELINE = N/A			
1991 FEB	.160 <T	.060 <T	.100 <T	.070 <T	.060 <T	.160 <T
1991 APR	.100 <T	.100 <T	.080 <T	.200 <T	.080 <T	.150 <T
1991 JUN	.100 <T	.090 <T	.130 <T	.170 <T	.080 <T	.100 <T
1991 AUG	.060 <T	.130 <T	.130 <T	.100 <T	.080 <T	.280 <T
1991 OCT	.080 <T	.130 <T	.130 <T	.140 <T	.110 <T	.140 <T
1991 NOV	.520 <T	.090 <T			.160 <T	.180 <T
1992 FEB	.250 <T	.300 <T			.400 <T	.350 <T
1992 APR	.050 <T	.110 <T			.040 <T	.030 <T
1992 JUN	.080 <T	.250 <T			.120 <T	.320 <T
1992 AUG	.140 <T	.150 <T			.150 <T	.170 <T
1992 OCT	.100 <T	.120 <T			.110 <T	.140 <T
1992 DEC	.110 <T	.120 <T			.120 <T	.150 <T
CHROMIUM (UG/L)						
			DET'N LIMIT = 0.50			
			GUIDELINE = 50.0 (A1)			
1991 FEB	1.500 <T	1.200 <T	2.000 <T	1.400 <T	1.300 <T	1.300 <T
1991 APR	1.600 <T	1.800 <T	2.300 <T	2.400 <T	1.400 <T	.820 <T
1991 JUN	BOL	.510 <T	BOL	BOL	BOL	.670 <T
1991 AUG	1.100 <T	1.600 <T	1.600 <T	1.500 <T	1.300 <T	1.400 <T
1991 OCT	1.700 <T	1.900 <T	1.600 <T	1.500 <T	1.900 <T	1.700 <T
1991 NOV	1.800 <T	2.300 <T	.840 <T	1.500 <T	2.300 <T	1.400 <T
1992 FEB	BOL	.590 <T			.510 <T	.520 <T
1992 APR	BOL	BOL			BOL	BOL
1992 JUN	BOL	.800 <T			BOL	BOL
1992 AUG	.760 <T	1.100 <T			.660 <T	.770 <T
1992 OCT	2.400 <T	2.800 <T			3.800 <T	6.400
1992 DEC	1.300 <T	1.400 <T			2.800 <T	1.400 <T
			DET'N LIMIT = 0.50			
			GUIDELINE = 50.0 (A1)			
1991 FEB	1.500 <T	1.200 <T	2.000 <T	1.400 <T	1.300 <T	1.300 <T
1991 APR	1.600 <T	1.800 <T	2.300 <T	2.400 <T	1.400 <T	.820 <T
1991 JUN	BOL	.510 <T	BOL	BOL	BOL	.670 <T
1991 AUG	1.100 <T	1.600 <T	1.600 <T	1.500 <T	1.300 <T	1.400 <T
1991 OCT	1.700 <T	1.900 <T	1.600 <T	1.500 <T	1.900 <T	1.700 <T
1991 NOV	1.800 <T	2.300 <T	.840 <T	1.500 <T	2.300 <T	1.400 <T
1992 FEB	BOL	.590 <T			.510 <T	.520 <T
1992 APR	BOL	BOL			BOL	BOL
1992 JUN	BOL	.800 <T			BOL	BOL
1992 AUG	.760 <T	1.100 <T			.660 <T	.770 <T
1992 OCT	2.400 <T	2.800 <T			3.800 <T	6.400
1992 DEC	1.300 <T	1.400 <T			2.800 <T	1.400 <T
			DET'N LIMIT = 0.50			
			GUIDELINE = 50.0 (A1)			

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH WSS

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM MONTICALLY DR FREE FLOW	DIST. SYSTEM MONTICALLY DR STANDING	DIST. SYSTEM HAROLD DR FREE FLOW	DIST. SYSTEM HAROLD DR STANDING
METALS					
COPPER (UG/L)					
DET'N LIMIT = 0.50					
GUIDELINE = 1000 (A3)					
1991 FEB	4.700 <T	BDL	210.000	20.000	330.000
1991 APR	3.100 <T	BDL	34.000	29.000	260.000
1991 JUN	4.500 <T	1.700 <T	320.000	45.000	320.000
1991 AUG	5.600	BDL	29.000	35.000	250.000
1991 OCT	3.000 <T	BDL	160.000	39.000	240.000
1991 NOV	2.300 <T	BDL		37.000	300.000
1992 FEB	2.100 <T	BDL		20.000	300.000
1992 APR	3.800 <T	BDL		23.000	250.000
1992 JUN	3.700 <T	1.300 <T		17.000	72.000
1992 AUG	3.900 <T	.540 <T		8.400	40.000
1992 OCT	2.700 <T	.520 <T		6.600	37.000
1992 DEC	.540 <T	.990 <T		7.800	100.000
IRON (UG/L)					
DET'N LIMIT = 6.00					
GUIDELINE = 300 (A3)					
1991 FEB	40.000 <T	17.000 <T	12.000 <T	66.000	200.000
1991 APR	73.000	7.800 <T	9.000 <T	85.000	96.000
1991 JUN	69.000	13.000 <T	24.000 <T	89.000	130.000
1991 AUG	28.000 <T	26.000 <T	8.900 <T	64.000	64.000
1991 OCT	33.000 <T	7.800 <T	7.600 <T	100.000	95.000
1991 NOV	23.000 <T	12.000 <T		190.000	150.000
1992 FEB	24.000 <T	9.500 <T		130.000	100.000
1992 APR	56.000 <T	34.000 <T		100.000	120.000
1992 JUN	27.000 <T	BDL		45.000 <T	55.000 <T
1992 AUG	34.000 <T	180.000		12.000 <T	13.000 <T
1992 OCT	27.000 <T	46.000 <T		20.000 <T	49.000 <T
1992 DEC	47.000 <T	BDL		24.000 <T	47.000 <T
MERCURY (UG/L)					
DET'N LIMIT = 0.02					
GUIDELINE = 1.0 (A1)					
1991 FEB	BDL	BDL			
1991 APR	BDL	BDL			
1991 JUN	BDL	BDL			
1991 AUG	BDL	BDL			
1991 OCT	BDL	BDL			
1991 NOV	BDL	BDL			
1992 FEB	BDL	BDL			
1992 APR	BDL	BDL			
1992 JUN	BDL	BDL			
1992 AUG	BDL	BDL			
1992 OCT	BDL	BDL			
1992 DEC	BDL	.030 <T			

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH WSS

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM MONTICALLY OR FREE FLOW	DIST. SYSTEM MONTICALLY OR STANDING	DIST. SYSTEM HAROLD OR FREE FLOW	DIST. SYSTEM HAROLD OR STANDING
MANGANESE (UG/L)					
METALS					
DET'N LIMIT = 0.05					
GUIDELINE = 50.0 (A3)					
1991 FEB	7.100	2.200	2.300	5.400	6.900
1991 APR	11.000	1.500	2.500	7.500	8.400
1991 JUN	31.000	2.500	3.100	7.900	10.000
1991 AUG	19.000	1.500	1.700	8.200	10.000
1991 OCT	15.000	2.500	3.200	8.600	9.600
1991 NOV	9.300	.	.	13.000	10.000
1992 FEB	8.400	2.100	.	7.800	7.500
1992 APR	13.000	2.500	.	6.100	7.300
1992 JUN	22.000	2.000	.	8.900	8.600
1992 AUG	29.000	2.100	.	3.700	4.100
1992 OCT	16.000	1.100	.	4.000	5.700
1992 DEC	7.700	1.100	.	4.200	4.900
MOLYBDENUM (UG/L)					
DET'N LIMIT = 0.05					
GUIDELINE = N/A					
1991 FEB	310 <T	230 <T	210 <T	210 <T	250 <T
1991 APR	150 <T	200 <T	190 <T	170 <T	190 <T
1991 JUN	200 <T	220 <T	260 <T	230 <T	260 <T
1991 AUG	190 <T	260 <T	230 <T	220 <T	210 <T
1991 OCT	210 <T	230 <T	230 <T	070 <T	100 <T
1991 NOV	300 <T	280 <T	300 <T	300 <T	200 <T
1992 FEB	230 <T	210 <T	270 <T	190 <T	230 <T
1992 APR	550	.	.	190 <T	320 <T
1992 JUN	240 <T	200 <T	.	190 <T	190 <T
1992 AUG	160 <T	210 <T	.	230 <T	200 <T
1992 OCT	220 <T	280 <T	.	290 <T	250 <T
1992 DEC	200 <T	230 <T	.	200 <T	190 <T
NICKEL (UG/L)					
DET'N LIMIT = 0.20					
GUIDELINE = 350 (03)					
1991 FEB	360 <T	BOL	22.000	BOL	6.600
1991 APR	420 <T	300 <T	28.000	260 <T	23.000
1991 JUN	1.300 <T	BOL	35.000	BOL	28.000
1991 AUG	BOL	260 <T	8.000	320 <T	130.000
1991 OCT	340 <T	430 <T	2.600	BOL	14.000
1991 NOV	BOL	.	.	BOL	10.000
1992 FEB	760 <T	970 <T	.	1.100 <T	4.800
1992 APR	1.400 <T	1.100 <T	.	690 <T	12.000
1992 JUN	660 <T	420 <T	.	BOL	21.000
1992 AUG	470 <T	260 <T	.	710 <T	7.60 <T
1992 OCT	BOL	BOL	.	BOL	7.100
1992 DEC	BOL	BOL	.	BOL	14.000

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH NSS

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM				DIST. SYSTEM			
		MONTICALLY DR		STANDING		HAROLD DR		STANDING	
		DET'N LIMIT = 0.05				GUIDELINE = 10 (A1)			
LEAD (UG/L)		BDL	.490 <T	4,700		.440 <T	15,000 RRV		
1991 FEB	.110 <T	BDL					6,000		
1991 APR	.220 <T	BDL	1,000	5,800		.700	8,100		
1991 JUN	.110 <T	.360 <T	1,700	7,500		1,100	5,900		
1991 AUG	.110 <T	BDL	1,800	4,400		1,100	5,400		
1991 OCT	.100 <T	BDL	.910	3,500		.870	6,400		
1991 NOV	.120 <T	BDL				2,300	4,800		
1992 FEB	.070 <T	BDL				1,200	4,900		
1992 APR	.160 <T	BDL				.510	1,900		
1992 JUN	.110 <T	.060 <T				.430 <T	1,300		
1992 AUG	.330 <T	.120 <T				.330 <T	2,900		
1992 OCT	.110 <T	BDL				.390 <T	5,400		
1992 DEC	.150 <T	1,200				.390 <T			
		DET'N LIMIT = 0.05				GUIDELINE = 146 (D4)			
ANTIMONY (UG/L)		.420 <T	.500 <T	.600		.540	.790		
1991 FEB	.740	.430 <T		.620		.380 <T	.640		
1991 APR	.520	.400 <T	.380 <T	.490 <T		.440 <T	.550		
1991 JUN	.350 <T	.300 <T	.260 <T	.430 <T		.510	.540		
1991 OCT	.470 <T	.510	.350 <T	.580		.590	.610		
1991 NOV	.510	.470 <T				.640	.700		
1992 FEB	.600	.500 <T				.730	.910		
1992 APR	.340 <T	.240 <T				.480 <T	.700		
1992 JUN	.340 <T	.340 <T				.410 <T	.430 <T		
1992 AUG	.350 <T	.350 <T				.560	.590		
1992 OCT	.470 <T	.360 <T				.560	.530		
1992 DEC	.550	.440 <T				.460 <T	.570		
		DET'N LIMIT = 1.00				GUIDELINE = 10 (A1)			
SELENIUM (UG/L)		BDL	BDL	BDL		BDL	BDL		
1991 FEB	BDL	BDL	BDL	BDL		BDL	BDL		
1991 APR	BDL	BDL	BDL	BDL		BDL	BDL		
1991 JUN	BDL	BDL	BDL	BDL		BDL	BDL		
1991 AUG	BDL	BDL	BDL	BDL		BDL	BDL		
1991 OCT	BDL	BDL	BDL	BDL		BDL	BDL		
1991 NOV	BDL	BDL	BDL	BDL		BDL	BDL		
1992 FEB	BDL	BDL	BDL	BDL		BDL	BDL		
1992 APR	BDL	BDL	BDL	BDL		BDL	BDL		
1992 JUN	BDL	BDL	BDL	BDL		BDL	BDL		
1992 AUG	1,300 <T	1,100 <T				1,100 <T	BDL		
1992 OCT	BDL	BDL				1,600 <T	1,200 <T		
1992 DEC	BDL	BDL				BDL	BDL		

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH WSS

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM MONTICALI OR FREE FLOW	DIST. SYSTEM MONTICALI OR STANDING	DIST. SYSTEM HAROLD OR FREE FLOW	DIST. SYSTEM HAROLD OR STANDING
STRONTIUM (UG/L)					
METALS					
DET'N LIMIT = 0.10. GUIDELINE = N/A					
1991 FEB	110.000	110.000	110.000	110.000	110.000
1991 APR	110.000	110.000	110.000	110.000	110.000
1991 JUN	110.000	110.000	110.000	110.000	110.000
1991 AUG	98.000	110.000	110.000	110.000	110.000
1991 OCT	100.000	97.000	96.000	95.000	100.000
1991 DEC	94.000	98.000	96.000	100.000	100.000
1992 FEB	100.000	100.000	100.000	100.000	110.000
1992 APR	120.000	120.000	120.000	120.000	120.000
1992 JUN	120.000	120.000	120.000	120.000	120.000
1992 AUG	110.000	110.000	110.000	110.000	110.000
1992 OCT	110.000	110.000	110.000	110.000	110.000
1992 DEC	110.000	110.000	110.000	110.000	110.000
DET'N LIMIT = 0.50. GUIDELINE = N/A					
TITANIUM (UG/L)					
1991 FEB	4.500 <T	5.100	4.500 <T	4.500 <T	4.600 <T
1991 APR	5.300	5.200	5.500 <T	5.600 <T	5.800
1991 JUN	1.800 <T	1.700 <T	1.500 <T	1.400 <T	1.700 <T
1991 AUG	1.820 <T	1.600 <T	1.800 <T	1.800 <T	1.750 <T
1991 OCT	1.600 <T	1.800 <T	1.780 <T	1.670 <T	1.840 <T
1991 NOV	2.100 <T	2.700 <T	1.990 <T	1.700 <T	2.500 <T
1992 FEB	2.700 <T	3.200 <T	3.200 <T	3.200 <T	3.500 <T
1992 APR	5.800	5.600	5.600	5.600	6.500
1992 JUN	7.600	7.600	7.600	8.300	8.000
1992 AUG	4.700 <T	3.900 <T	4.400 <T	4.400 <T	4.300 <T
1992 OCT	2.200 <T	2.100 <T	2.300 <T	2.300 <T	2.100 <T
1992 DEC	3.600 <T	3.100 <T	3.600 <T	3.500 <T	4.000 <T
DET'N LIMIT = 0.05. GUIDELINE = 13 (D4)					
THALLIUM (UG/L)					
58 SAMPLES	BOL	BOL	BOL	BOL	BOL

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH WSS

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM MONTICALLY DR STANDING	DIST. SYSTEM HAROLD DR FREE FLOW	DIST. SYSTEM MONTICALLY DR STANDING	DIST. SYSTEM HAROLD DR FREE FLOW	DIST. SYSTEM HAROLD DR STANDING	METALS	
							URANIUM (UG/L)	ZINC (UG/L)
URANIUM (UG/L)								
		DET'N LIMIT = 0.05		GUIDELINE = 100 (A1)				
1991 FEB	.180 <T	.140 <T	.150 <T	.130 <T	.130 <T	.160 <T		
1991 APR	.180 <T	BDL	BDL	BDL	BDL	.070 <T		
1991 JUN	.140 <T	.090 <T	.080 <T	.070 <T	.070 <T	.060 <T		
1991 AUG	.120 <T	BDL	.060 <T	.060 <T	BDL	BDL		
1991 OCT	.170 <T	.070 <T	BDL	BDL	BDL	BDL		
1991 NOV	.110 <T	BDL	.	.	BDL	BDL		
1992 FEB	.160 <T	BDL	.	.	.060 <T	.060 <T		
1992 APR	.160 <T	.060 <T	.	.	.070 <T	.080 <T		
1992 JUN	.130 <T	.060 <T	.	.	.060 <T	.080 <T		
1992 AUG	.170 <T	.140 <T	.	.	.080 <T	.090 <T		
1992 OCT	.120 <T	BDL	.	.	BDL	BDL		
1992 DEC	.200 <T	BDL	.	.	BDL	BDL		
VANADIUM (UG/L)								
		DET'N LIMIT = 0.05		GUIDELINE = N/A				
1991 FEB	.120 <T	.810	.760	.850	.580	1.100		
1991 APR	BDL	.520	.470 <T	.590	.290 <T	.440 <T		
1991 JUN	.360 <T	1.600	1.200	1.400	1.100	1.100		
1991 AUG	.380 <T	1.500	1.500	1.300	.870	.570		
1991 OCT	.290 <T	1.300	.920	.930	.540	.590		
1991 NOV	.230 <T	.940	.	.	.570	.600		
1992 FEB	.170 <T	.910	.	.	.620	.360 <T		
1992 APR	BDL	.760	.	.	.370	.710		
1992 JUN	.190 <T	1.100	.	.	1.000	.900		
1992 AUG	.230 <T	.760	.	.	1.000	.960		
1992 OCT	.340 <T	1.100	.	.	.940	.860		
1992 DEC	.160 <T	1.100	.	.	.790	.860		
ZINC (UG/L)								
		DET'N LIMIT = 0.20		GUIDELINE = 5000 (A3)				
1991 FEB	2.700	1.500 <T	4.700	73.000	2.400	22.000		
1991 APR	3.300	2.500	7.000	32.000	3.900	28.000		
1991 JUN	3.300	BDL	BDL	110.000	BDL	31.000		
1991 AUG	BDL	.860 <T	.860 <T	22.000	1.500 <T	36.000		
1991 OCT	.710 <T	1.300 <T	2.100	22.000	2.400	27.000		
1991 NOV	.240 <T	.830 <T	.	.	1.500 <T	27.000		
1992 FEB	6.800	3.500	.	.	4.100	22.000		
1992 APR	5.700	2.000 <T	.	.	2.900	22.000		
1992 JUN	1.400 <T	2.100	.	.	1.800 <T	8.800		
1992 AUG	2.800	2.400	.	.	2.400	7.400		
1992 OCT	2.200	2.500	.	.	4.400	34.000		
1992 DEC	2.700	4.200	.	.	5.900	100.000		

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH WSS

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM MONTICLIM DR FREE FLOW	DIST. SYSTEM MONTICLIM DR STANDING	DIST. SYSTEM HAROLD DR STANDING
CHLOROBROMATICS				
HEXACHLOROBUTADIENE (NG/L)		DET'N LIMIT = 1.000	GUIDELINE = 450 (D4)	
30 SAMPLES	BDL	BDL		BDL
123-TRICHLOROBENZENE (NG/L)				
		DET'N LIMIT = 5.000	GUIDELINE = N/A	
30 SAMPLES	BDL	BDL		BDL
1234-TETChLOROBENZENE (NG/L)				
		DET'N LIMIT = 1.000	GUIDELINE = N/A	
30 SAMPLES	BDL	BDL		BDL
1235-TETChLOROBENZENE (NG/L)				
		DET'N LIMIT = 1.000	GUIDELINE = N/A	
30 SAMPLES	BDL	BDL		BDL
124-TRICHLOROBENZENE (NG/L)				
		DET'N LIMIT = 5.000	GUIDELINE = 10000 (1)	
30 SAMPLES	BDL	BDL		BDL
1245-TETChLOROBENZENE (NG/L)				
		DET'N LIMIT = 1.000	GUIDELINE = 38000 (D4)	
30 SAMPLES	BDL	BDL		BDL
135-TRICHLOROBENZENE (NG/L)				
		DET'N LIMIT = 5.000	GUIDELINE = N/A	
30 SAMPLES	BDL	BDL		BDL
HEXACHLOROBENZENE (NG/L)				
		DET'N LIMIT = 1.000	GUIDELINE = 10 (C1)	
30 SAMPLES	BDL	BDL		BDL

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH WSS

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM MONTICM DR FREE FLOW	DIST. SYSTEM MONTICM DR STANDING	DIST. SYSTEM HAROLD DR FREE FLOW	DIST. SYSTEM HAROLD DR STANDING
CHLOROMATICS					
HEXACHLOROETHANE (NG/L)					
1991 FEB	BDL	2,000 <T	BDL	BDL	BDL
1991 APR	BDL	8,000 <T	12,000	BDL	BDL
1991 JUN	BDL	8,000 <T	2,000 <T	7,000 <T	BDL
1991 AUG	1AW	1AW	1AW	1AW	1AW
1991 OCT	1AW	1AW	1AW	1AW	1AW
1991 NOV	BDL	2,000 <T	BDL	BDL	BDL
1991 DEC	BDL	BDL	BDL	BDL	BDL
1992 APR	BDL	5,000 <T	BDL	2,000 <T	BDL
1992 JUN	BDL	BDL	BDL	BDL	BDL
1992 AUG	BDL	4,000 <T	BDL	1,000 <T	BDL
1992 OCT	BDL	6,000 <T	BDL	3,000 <T	BDL
1992 DEC	BDL	BDL	BDL	BDL	BDL
OCTACHLOROSTYRENE (NG/L)					
30 SAMPLES	BDL	DET'N LIMIT = 1,000	BDL	GUIDELINE = 1900 (D4)	BDL
PENTACHLOROBENZENE (NG/L)					
30 SAMPLES	BDL	DET'N LIMIT = 1,000	BDL	GUIDELINE = 74000 (D4)	BDL
236-TRICHLOROTOLUENE (NG/L)					
30 SAMPLES	BDL	DET'N LIMIT = 5,000	BDL	GUIDELINE = N/A	BDL
245-TRICHLOROTOLUENE (NG/L)					
30 SAMPLES	BDL	DET'N LIMIT = 5,000	BDL	GUIDELINE = N/A	BDL
254-TRICHLOROTOLUENE (NG/L)					
30 SAMPLES	BDL	DET'N LIMIT = 5,000	BDL	GUIDELINE = N/A	BDL
HEXACHLOROETHANE (NG/L)					
1991 FEB	BDL	2,000 <T	BDL	BDL	BDL
1991 APR	BDL	8,000 <T	12,000	BDL	BDL
1991 JUN	BDL	8,000 <T	2,000 <T	7,000 <T	BDL
1991 AUG	1AW	1AW	1AW	1AW	1AW
1991 OCT	1AW	1AW	1AW	1AW	1AW
1991 NOV	BDL	2,000 <T	BDL	BDL	BDL
1991 DEC	BDL	BDL	BDL	BDL	BDL
1992 APR	BDL	5,000 <T	BDL	2,000 <T	BDL
1992 JUN	BDL	BDL	BDL	BDL	BDL
1992 AUG	BDL	4,000 <T	BDL	1,000 <T	BDL
1992 OCT	BDL	6,000 <T	BDL	3,000 <T	BDL
1992 DEC	BDL	BDL	BDL	BDL	BDL

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH WSS

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM MONTICAH DR FREE FLOW	DIST. SYSTEM MONTICAH DR STANDING	DIST. SYSTEM HAROLD DR FREE FLOW	DIST. SYSTEM HAROLD DR STANDING
CHLOROPHENOLS					
234-TRICHLOROPHENOL (NG/L)		DET'N LIMIT = 100.0		GUIDELINE = N/A	
4 SAMPLES	BDL				
2345-TETRACHLOROPHENOL (NG/L)		DET'N LIMIT = 20.0		GUIDELINE = N/A	
4 SAMPLES	BDL				
2356-TETRACHLOROPHENOL (NG/L)		DET'N LIMIT = 10.0		GUIDELINE = N/A	
4 SAMPLES	BDL				
245-TRICHLOROPHENOL (NG/L)		DET'N LIMIT = 100.0		GUIDELINE = 2600000 (D4)	
4 SAMPLES	BDL				
246-TRICHLOROPHENOL (NG/L)		DET'N LIMIT = 20.0		GUIDELINE = 5000 (A1)	
4 SAMPLES	BDL				
PENTACHLOROPHENOL (NG/L)		DET'N LIMIT = 10.00		GUIDELINE = 60000 (A1)	
4 SAMPLES	BDL				

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH WSS

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM MONTCALM DR FREE FLOW	DIST. SYSTEM MONTCALM DR STANDING	DIST. SYSTEM HAROLD DR FREE FLOW	DIST. SYSTEM HAROLD DR STANDING
PESTICIDES AND PCB					
ALDRIN (NG/L)	BDL	BDL	BDL	BDL	BDL
30 SAMPLES					
ALPHA BHC (NG/L)	BDL	BDL	BDL	BDL	BDL
1991 FEB	BDL	BDL	BDL	BDL	BDL
1991 APR	BDL	BDL	BDL	BDL	BDL
1991 JUN	BDL	BDL	BDL	BDL	BDL
1991 AUG	BDL	BDL	BDL	BDL	BDL
1991 OCT	BDL	BDL	BDL	BDL	BDL
1991 NOV	BDL	BDL	BDL	BDL	BDL
1992 APR	BDL	BDL	BDL	BDL	BDL
1992 JUN	BDL	BDL	BDL	BDL	BDL
1992 OCT	BDL	BDL	BDL	BDL	BDL
1992 DEC	BDL	BDL	BDL	BDL	BDL
BETA BHC (NG/L)	BDL	BDL	BDL	BDL	BDL
30 SAMPLES					
LINDANE (GAMMA BHC) (NG/L)	BDL	BDL	BDL	BDL	BDL
30 SAMPLES					
ALPHA CHLORDANE (NG/L)	BDL	BDL	BDL	BDL	BDL
30 SAMPLES					
GAMMA CHLORDANE (NG/L)	BDL	BDL	BDL	BDL	BDL
30 SAMPLES					
DIELDRIN (NG/L)	BDL	BDL	BDL	BDL	BDL
30 SAMPLES					
METHOXYCHLOR (NG/L)	BDL	BDL	BDL	BDL	BDL
30 SAMPLES					
ENDOSULFAN 1 (NG/L)	BDL	BDL	BDL	BDL	BDL
30 SAMPLES					

TABLE 4
-DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH WSS

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	PESTICIDES AND PCB		DIST. SYSTEM FREE FLOW	DIST. SYSTEM MONTICALL DR STANDING	DIST. SYSTEM HAROLD DR STANDING
		ENDOSULFAN II (NG/L)	DET'N LIMIT = 5.000			
30 SAMPLES	BOL	BOL	DET'N LIMIT = 5.000	GUIDELINE = 74000 (D4)		
ENDRIN (NG/L)		BOL	DET'N LIMIT = 5.000	GUIDELINE = 1600 (D3)		
30 SAMPLES	BOL	BOL	DET'N LIMIT = 5.00	GUIDELINE = N/A		
ENDOSULFAN SULPHATE (NG/L)		BOL	DET'N LIMIT = 1.000	GUIDELINE = 3000 (A1)		
30 SAMPLES	BOL	BOL	DET'N LIMIT = 1.000	GUIDELINE = 3000 (A1)		
HEPTACHLOR EPOXIDE (NG/L)		BOL	DET'N LIMIT = 1.000	GUIDELINE = 3000 (A1)		
24 SAMPLES	BOL	BOL	DET'N LIMIT = 1.000	GUIDELINE = 3000 (A1)		
HEPTACHLOR (NG/L)		BOL	DET'N LIMIT = 1.000	GUIDELINE = 3000 (A1)		
30 SAMPLES	BOL	BOL	DET'N LIMIT = 5.000	GUIDELINE = N/A		
MIREX (NG/L)		BOL	DET'N LIMIT = 2.000	GUIDELINE = N/A		
30 SAMPLES	BOL	BOL	DET'N LIMIT = 5.000	GUIDELINE = 30000 (A1)		
OXYCHLORANE (NG/L)		BOL	DET'N LIMIT = 20.00	GUIDELINE = 3000 (A2)		
30 SAMPLES	BOL	BOL	DET'N LIMIT = 5.000	GUIDELINE = 30000 (A1)		
O,P-DDT (NG/L)		BOL	DET'N LIMIT = 5.000	GUIDELINE = 30000 (A1)		
30 SAMPLES	BOL	BOL	DET'N LIMIT = 5.000	GUIDELINE = 30000 (A1)		
PCB (NG/L)		BOL	DET'N LIMIT = 5.000	GUIDELINE = 30000 (A1)		
30 SAMPLES	BOL	BOL	DET'N LIMIT = 5.000	GUIDELINE = 30000 (A1)		
P,P-DDT (NG/L)		BOL	DET'N LIMIT = 1.000	GUIDELINE = 30000 (A1)		
30 SAMPLES	BOL	BOL	DET'N LIMIT = 5.000	GUIDELINE = 30000 (A1)		
P,P-DDT (NG/L)		BOL	DET'N LIMIT = 5.000	GUIDELINE = 30000 (A1)		
30 SAMPLES	BOL	BOL	DET'N LIMIT = 5.000	GUIDELINE = 30000 (A1)		
P,P-DDT (NG/L)		BOL	DET'N LIMIT = 5.000	GUIDELINE = 30000 (A1)		
30 SAMPLES	BOL	BOL	DET'N LIMIT = 5.000	GUIDELINE = 30000 (A1)		

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH WSS

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM MONTICALLI DR FREE FLOW	DIST. SYSTEM MONTICALLI DR STANDING	DIST. SYSTEM HAROLD DR FREE FLOW	DIST. SYSTEM HAROLD DR STANDING
PESTICIDES AND PCB					
TOXAPHENE (NG/L)		DET/N LIMIT = 500.0	GUIDELINE = 5000 (A1)		
26 SAMPLES	BDL	BDL		BDL	
AMETRIENE (NG/L)		DET/N LIMIT = 50.0	GUIDELINE = 300000 (03)		
17 SAMPLES	BDL				
ATRAZINE (NG/L)		DET/N LIMIT = 50.0	GUIDELINE = 60000 (A2)		
1991 FEB	BDL				
1991 APR	BDL				
1991 JUN	BDL				
1991 AUG	BDL				
1991 OCT	BDL				
1991 DEC	BDL				
1992 FEB	BDL				
1992 APR	BDL				
1992 JUN	BDL				
1992 OCT	BDL				
1992 DEC	BDL				
ATRAZONE (NG/L)		DET/N LIMIT = 50.0	GUIDELINE = N/A		
17 SAMPLES	BDL				
CYANAZINE (BLADEX) (NG/L)		DET/N LIMIT = 100.0	GUIDELINE = 10000 (A2)		
17 SAMPLES	BDL				
DESETHYL ATRAZINE (NG/L)		DET/N LIMIT = 200.0	GUIDELINE = 60000 (A2)		
17 SAMPLES	BDL				
DESETHYL SIMAZINE (NG/L)		DET/N LIMIT = 200.0	GUIDELINE = 10000 (A2)		
15 SAMPLES	BDL				
PROMETONE (NG/L)		DET/N LIMIT = 50.000	GUIDELINE = 52500 (03)		
17 SAMPLES	BDL				
PROPACAZINE (NG/L)		DET/N LIMIT = 50.000	GUIDELINE = 700000 (03)		
17 SAMPLES	BDL				

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH WSS

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM MONTICLAIM DR FREE FLOW	DIST. SYSTEM MONTICLAIM DR STANDING	DIST. SYSTEM HAROLD DR FREE FLOW	DIST. SYSTEM HAROLD DR STANDING
PESTICIDES AND PCB					
PROMETHYNE (NG/L)		DET'M LIMIT = 50.000		GUIDELINE = 1000 (A2)	
17 SAMPLES	BDL				
METRIBUZIN (SENCOR) (NG/L)		DET'M LIMIT = 100.0		GUIDELINE = 80000 (A1)	
17 SAMPLES	BDL				
SIMAZINE (NG/L)		DET'M LIMIT = 50.00		GUIDELINE = 10000 (A2)	
17 SAMPLES	BDL				
ALACHLOR (LASSO) (NG/L)		DET'M LIMIT = 500.0		GUIDELINE = 5000 (A2)	
17 SAMPLES	BDL				
METOLACHLOR (NG/L)		DET'M LIMIT = 500.0		GUIDELINE = 50000 (A2)	
17 SAMPLES	BDL				
HEXACHYCLOPENTADIEN (NG/L)		DET'M LIMIT = 5.00		GUIDELINE = 206000 (D4)	
1991 FEB	BDL	63.000	13.000 <T	333.000	
1991 APR	BDL	166.000	138.000	388.000	
1991 JUN	IQU	IQU	IQU	IQU	
1991 AUG	IQU	IQU	IQU	IQU	
1991 OCT	IQU	IQU	IQU	IQU	
1991 NOV	BDL	180.000		44.000 <T	
1992 APR	IQU	IQU		IQU	
1992 JUN	IQU	IQU		IQU	
1992 AUG	IQU	IQU		IQU	
1992 OCT	IQU	IQU		IQU	
1992 DEC	IQU	IQU		IQU	

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH WSS

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM MONTICM DR FREE FLOW	DIST. SYSTEM MONTICM DR STANDING	DIST. SYSTEM HAROLD DR FREE FLOW	DIST. SYSTEM HAROLD DR STANDING
PHENOLOGICS (UG/L)					
1991 FEB	BDL	DET'N LIMIT =	0.2	GUIDELINE = N/A	
1991 APR	BDL				
1991 JUN	BDL				
1991 AUG	200 <T				
1991 OCT	600 <T				
1991 NOV	400 <T				
1992 FEB	600 <T				
1992 APR	1,200				
1992 JUN	BDL				
1992 AUG	400 <T				
1992 OCT	BDL				
1992 DEC	BDL				

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH WSS

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM MONTICM DR FREE FLOW	DIST. SYSTEM MONTICM DR STANDING	DIST. SYSTEM HAROLD DR FREE FLOW	DIST. SYSTEM HAROLD DR STANDING
POLYAROMATIC HYDROCARBONS					
PHENANTHRENE (NG/L)		DET'N LIMIT = 10.0	GUIDELINE = N/A		
15 SAMPLES	BDL	BDL			BDL
ANTHRACENE (NG/L)		DET'N LIMIT = 1.0	GUIDELINE = N/A		
15 SAMPLES	BDL	BDL			BDL
FLUORANTHRENE (NG/L)		DET'N LIMIT = 20.0	GUIDELINE = 42000 (04)		
15 SAMPLES	BDL	BDL			BDL
PYRENE (NG/L)		DET'N LIMIT = 20.0	GUIDELINE = N/A		
15 SAMPLES	BDL	BDL			BDL
BENZO(A)ANTHRACENE (NG/L)		DET'N LIMIT = 20.0	GUIDELINE = N/A		
15 SAMPLES	BDL	BDL			BDL
CHRYSENE (NG/L)		DET'N LIMIT = 50.0	GUIDELINE = N/A		
15 SAMPLES	BDL	BDL			BDL
DIMETH. BENZ(A)ANTHR (NG/L)		DET'N LIMIT = 5.0	GUIDELINE = N/A		
15 SAMPLES	BDL	BDL			BDL
BENZO(E) PYRENE (NG/L)		DET'N LIMIT = 50.0	GUIDELINE = N/A		
15 SAMPLES	BDL	BDL			BDL
BENZO(B) FLUORANTHENE (NG/L)		DET'N LIMIT = 10.0	GUIDELINE = N/A		
15 SAMPLES	BDL	BDL			BDL
PERYLENE (NG/L)		DET'N LIMIT = 10.0	GUIDELINE = N/A		
15 SAMPLES	BDL	BDL			BDL
BENZO(K) FLUORANTHENE (NG/L)		DET'N LIMIT = 1.0	GUIDELINE = N/A		
15 SAMPLES	BDL	BDL			BDL
BENZO(A) PYRENE (NG/L)		DET'N LIMIT = 5.0	GUIDELINE = 10 (A1)		
15 SAMPLES	BDL	BDL			BDL

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH WSS

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM MONTICALL DR FREE FLOW	DIST. SYSTEM MONTICALL DR STANDING	DIST. SYSTEM FREE FLOW	DIST. SYSTEM HAROLD DR STANDING
POLYAROMATIC HYDROCARBONS					
BENZO(G,H,I) PERYLEN (NG/L)		DET'N LIMIT = 20.0		GUIDELINE = N/A	
15 SAMPLES	BDL	BDL			BDL
DIBENZO(A,H) ANTHRAC (NG/L)		DET'N LIMIT = 10.0		GUIDELINE = N/A	
15 SAMPLES	BDL	BDL			BDL
INDENO(1,2,3-C,D) PY (NG/L)		DET'N LIMIT = 20.0		GUIDELINE = N/A	
15 SAMPLES	BDL	BDL			BDL
BENZO(B) CHRYSENE (NG/L)		DET'N LIMIT = 2.0		GUIDELINE = N/A	
15 SAMPLES	BDL	BDL			BDL
CORONENE (NG/L)		DET'N LIMIT = 10.0		GUIDELINE = N/A	
15 SAMPLES	BDL	BDL			BDL

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH WSS

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM FREE FLOW	DIST. SYSTEM MONTICALL OR STANDING	DIST. SYSTEM HAROLD OR FREE FLOW	DIST. SYSTEM STANDING
SPECIFIC PESTICIDES					
TOXAPHENE (NG/L)		DET'N LIMIT = 500.0		GUIDELINE = 5000 (A1)	
4 SAMPLES	BDL	BDL		BDL	
2,4,5-T (NG/L)		DET'N LIMIT = 50.0		GUIDELINE = 280000 (A1)	
3 SAMPLES	BDL				
2,4-D (NG/L)		DET'N LIMIT = 100.0		GUIDELINE = 100000 (A1)	
3 SAMPLES	BDL				
2,4-DB (NG/L)		DET'N LIMIT = 200.0		GUIDELINE = N/A	
3 SAMPLES	BDL				
2,4 D PROPIONIC ACID (NG/L)		DET'N LIMIT = 100.0		GUIDELINE = N/A	
3 SAMPLES	BDL				
DICAMBA (NG/L)		DET'N LIMIT = 50.0		GUIDELINE = 120000 (A1)	
4 SAMPLES	BDL				
2,4,5-TP (SILVEX) (NG/L)		DET'N LIMIT = 20.00		GUIDELINE = 10000 (A1)	
3 SAMPLES	BDL				
DIAZINON (NG/L)		DET'N LIMIT = 20.0		GUIDELINE = 20000 (A1)	
4 SAMPLES	BDL				
DICHLOROVOS (NG/L)		DET'N LIMIT = 20.0		GUIDELINE = N/A	
4 SAMPLES	BDL				
CHLORPYRIFOS (NG/L)		DET'N LIMIT = 20.0		GUIDELINE = N/A	
4 SAMPLES	BDL				
ETHION (NG/L)		DET'N LIMIT = 20.0		GUIDELINE = 35000 (G)	
4 SAMPLES	BDL				
MALATHION (NG/L)		DET'N LIMIT = 20.0		GUIDELINE = 190000 (A1)	
4 SAMPLES	BDL				

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH NSS

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM MONTICALL DR FREE FLOW	DIST. SYSTEM MONTICALL DR STANDING	DIST. SYSTEM HAROLD DR FREE FLOW	DIST. SYSTEM HAROLD DR STANDING
SPECIFIC PESTICIDES					
MEVINPHOS (NG/L)		DET'N LIMIT = 20.0		GUIDELINE = N/A	
4 SAMPLES	BDL				
METHYL PARATHION (NG/L)		DET'N LIMIT = 50.0		GUIDELINE = 9000 (03)	
4 SAMPLES	BDL				
METHYLTRITHION (NG/L)		DET'N LIMIT = 20.0		GUIDELINE = N/A	
4 SAMPLES	BDL				
PARATHION (NG/L)		DET'N LIMIT = 20.0		GUIDELINE = 50000 (A1)	
4 SAMPLES	BDL				
PHORATE (NG/L)		DET'N LIMIT = 20.0		GUIDELINE = 2000 (A2)	
4 SAMPLES	BDL				
RELDAN (NG/L)		DET'N LIMIT = 20.0		GUIDELINE = N/A	
4 SAMPLES	BDL				
RONNEL (NG/L)		DET'N LIMIT = 20.0		GUIDELINE = N/A	
4 SAMPLES	BDL				
CARBOFURAN (NG/L)		DET'N LIMIT = 2000.0		GUIDELINE = 90000 (A1)	
4 SAMPLES	BDL				
CHLOROPHOPHAM (CIPC) (NG/L)		DET'N LIMIT = 2000.0		GUIDELINE = 350000 (G)	
4 SAMPLES	BDL				
DIALLATE (NG/L)		DET'N LIMIT = 2000.0		GUIDELINE = N/A	
4 SAMPLES	BDL				
EPTAM (NG/L)		DET'N LIMIT = 2000.0		GUIDELINE = N/A	
4 SAMPLES	BDL				
IPC (NG/L)		DET'N LIMIT = 2000.0		GUIDELINE = N/A	
4 SAMPLES	BDL				

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH WSS

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM MONTICAH DR FREE FLOW	DIST. SYSTEM MONTICAH DR STANDING	DIST. SYSTEM HAROLD DR FREE FLOW	DIST. SYSTEM HAROLD DR STANDING
SPECIFIC PESTICIDES					
PROPOXUR (NG/L)		DET'M LIMIT = 2000.0		GUIDELINE = 140000 (D3)	
4 SAMPLES	BDL	BDL			
CARBARYL (NG/L)		DET'M LIMIT = 200.0		GUIDELINE = 90000 (A1)	
4 SAMPLES	BDL	BDL			
BUTYLATE (NG/L)		DET'M LIMIT = 2000.0		GUIDELINE = 245000 (D3)	
4 SAMPLES	BDL	BDL			

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH WSS

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM MONTICALL DR FREE FLOW	DIST. SYSTEM MONTICALL DR STANDING	DIST. SYSTEM HAROLD DR FREE FLOW	DIST. SYSTEM HAROLD DR STANDING
VOLATILES					
BENZENE (UG/L)		DET'N LIMIT = 0.05		GUIDELINE = 5 (A1)	
1991 FEB	BOL	BOL		BOL	
1991 APR	BOL	BOL		BOL	
1991 JUN	BOL	BOL		BOL	
1991 AUG	BOL	BOL		BOL	
1991 OCT	BOL	.050 <T		.050 <T	
1991 NOV	BOL	BOL		BOL	
1992 FEB	BOL	BOL		BOL	
1992 APR	BOL	BOL		BOL	
1992 JUN	BOL	BOL		BOL	
1992 AUG	BOL	BOL		BOL	
1992 OCT	BOL	BOL		BOL	
1992 DEC	BOL	BOL		BOL	
TOUENE (UG/L)					
		DET'N LIMIT = 0.05		GUIDELINE = 24 (A3)	
1991 FEB	BOL	BOL		BOL	
1991 APR	BOL	BOL		BOL	
1991 JUN	BOL	BOL		BOL	
1991 AUG	BOL	BOL		BOL	
1991 OCT	BOL	.100 <T		.100 <T	
1991 NOV	BOL	BOL		BOL	
1992 FEB	BOL	BOL		BOL	
1992 APR	BOL	BOL		BOL	
1992 JUN	BOL	BOL		BOL	
1992 AUG	BOL	BOL		BOL	
1992 OCT	BOL	BOL		BOL	
1992 DEC	BOL	BOL		BOL	
ETHYLBENZENE (UG/L)					
		DET'N LIMIT = 0.05		GUIDELINE = 2.4 (A3)	
1991 FEB	.100 <T	BOL		.050 <T	
1991 APR	BOL	BOL		.050 <T	
1991 JUN	BOL	BOL		BOL	
1991 AUG	BOL	.100 <T		BOL	
1991 OCT	BOL	.050 <T		.100 <T	
1991 NOV	BOL	.100 <T		.100 <T	
1992 FEB	BOL	.150 <T		.150 <T	
1992 APR	BOL	.150 <T		.150 <T	
1992 JUN	BOL	.100 <T		.250 <T	
1992 AUG	BOL	.200 <T		.300 <T	
1992 OCT	BOL	.050 <T		.100 <T	
1992 DEC	.050 <T	.100 <T		.100 <T	
P-XYLENE (UG/L)					
		DET'N LIMIT = 0.10		GUIDELINE = 300 (A3*)	
1991 FEB	BOL	BOL		BOL	
1991 APR	BOL	BOL		BOL	
1991 JUN	BOL	BOL		BOL	
1991 AUG	BOL	.100 <T		BOL	
1991 OCT	BOL	.050 <T		.100 <T	
1991 NOV	BOL	.100 <T		.100 <T	
1992 FEB	BOL	.150 <T		.150 <T	
1992 APR	BOL	.150 <T		.150 <T	
1992 JUN	BOL	.100 <T		.250 <T	
1992 AUG	BOL	.200 <T		.300 <T	
1992 OCT	BOL	.050 <T		.100 <T	
1992 DEC	.050 <T	.100 <T		.100 <T	
42 SAMPLES					
	BOL	BOL		BOL	

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH WSS

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM MONTICAH DR FREE FLOW	DIST. SYSTEM MONTICAH DR STANDING	DIST. SYSTEM HAROLD DR FREE FLOW	DIST. SYSTEM HAROLD DR STANDING
VOLATILES					
M-XYLENE (UG/L)		DET'N LIMIT = 0.10		GUIDELINE = 300 (A3*)	
1991 FEB	BDL	BDL	BDL	BDL	-
1991 APR	BDL	BDL	BDL	.100 <T	-
1991 JUN	BDL	BDL	BDL	BDL	-
1991 AUG	BDL	BDL	BDL	BDL	-
1991 OCT	BDL	.100 <T	BDL	.200 <T	-
1991 NOV	BDL	BDL	BDL	BDL	-
1992 FEB	BDL	BDL	BDL	BDL	-
1992 APR	BDL	BDL	BDL	BDL	-
1992 JUN	BDL	BDL	BDL	BDL	-
1992 AUG	BDL	BDL	BDL	BDL	-
1992 OCT	BDL	BDL	BDL	BDL	-
1992 DEC	BDL	BDL	BDL	BDL	-
O-XYLENE (UG/L)		DET'N LIMIT = 0.05		GUIDELINE = 300 (A3*)	
1991 FEB	BDL	BDL	BDL	BDL	-
1991 APR	BDL	BDL	BDL	BDL	-
1991 JUN	BDL	BDL	BDL	BDL	-
1991 AUG	BDL	BDL	BDL	BDL	-
1991 OCT	BDL	.050 <T	BDL	.150 <T	-
1991 NOV	BDL	BDL	BDL	BDL	-
1992 FEB	BDL	BDL	BDL	BDL	-
1992 APR	BDL	BDL	BDL	BDL	-
1992 JUN	BDL	BDL	BDL	BDL	-
1992 AUG	BDL	BDL	BDL	BDL	-
1992 OCT	BDL	BDL	BDL	BDL	-
1992 DEC	BDL	BDL	BDL	BDL	-
STYRENE (UG/L)		DET'N LIMIT = 0.05		GUIDELINE = 100 (O1)	
1991 FEB	.150 <T	BDL	.100 <T	.150 <T	-
1991 APR	BDL	BDL	BDL	.050 <T	-
1991 JUN	BDL	.100 <T	BDL	BDL	-
1991 AUG	BDL	.150 <T	BDL	BDL	-
1991 OCT	BDL	.100 <T	BDL	.200 <T	-
1991 NOV	BDL	.100 <T	BDL	.200 <T	-
1992 FEB	.200 <T	.050 <T	.250 <T	.250 <T	-
1992 APR	BDL	BDL	BDL	.250 <T	-
1992 JUN	BDL	.200 <T	BDL	.400 <T	-
1992 AUG	BDL	.250 <T	BDL	.300 <T	-
1992 OCT	BDL	.050 <T	BDL	.100 <T	-
1992 DEC	.100 <T	.050 <T	BDL	.250 <T	-
1,1-DICHLOROETHYLENE (UG/L)		DET'N LIMIT = 0.100		GUIDELINE = 7 (O1)	
42 SAMPLES	BDL	BDL	BDL	BDL	BDL

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH WSS

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM MONTICM OR FREE FLOW	DIST. SYSTEM MONTICM OR STANDING	DIST. SYSTEM HAROLD OR FREE FLOW	DIST. SYSTEM HAROLD OR STANDING
VOLATILES					
METHYLENE CHLORIDE (UG/L)					
42 SAMPLES	BDL	BDL	BDL	BDL	BDL
GUIDELINE = 50 (A1)					
1,1,2-DICHLOROETHYLENE (UG/L)					
42 SAMPLES	BDL	BDL	BDL	BDL	BDL
GUIDELINE = 70 (D1)					
1,1,1-DICHLOROETHANE (UG/L)					
42 SAMPLES	BDL	BDL	BDL	BDL	BDL
GUIDELINE = N/A					
CHLOROFORM (UG/L)					
42 SAMPLES	BDL	BDL	BDL	BDL	BDL
GUIDELINE = 350 (A1+)					
1,1,1,1-TRICHLOROETHANE (UG/L)					
42 SAMPLES	BDL	BDL	BDL	BDL	BDL
GUIDELINE = 200 (D1)					
1,2-DICHLOROETHANE (UG/L)					
42 SAMPLES	BDL	BDL	BDL	BDL	BDL
GUIDELINE = 5 (A1)					

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH WSS

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM MONTICM DR FREE FLOW	DIST. SYSTEM MONTICM DR STANDING	DIST. SYSTEM HAROLD DR FREE FLOW	DIST. SYSTEM HAROLD DR STANDING
VOLATILES					
CARBON TETRACHLORIDE (UG/L)					
		DET'N LIMIT = 0.20		GUIDELINE = 5 (A1)	
42 SAMPLES	BOL	BOL		BOL	
1,2-DICHLOROPROPANE (UG/L)					
		DET'N LIMIT = 0.05		GUIDELINE = 5 (O1)	
42 SAMPLES	BOL	BOL		BOL	
TRICHLOROETHYLENE (UG/L)					
		DET'N LIMIT = 0.10		GUIDELINE = 50 (A1)	
42 SAMPLES	BOL	BOL		BOL	
DICHLOROBROMOMETHANE (UG/L)					
		DET'N LIMIT = 0.05		GUIDELINE = 350 (A1*)	
1991 FEB	BOL	5.200	2.650		3.150
1991 APR	BOL	4.900	2.550		3.100
1991 JUN	BOL	5.700	4.000		5.200
1991 AUG	BOL	5.700	4.250		3.000
1991 OCT	BOL	5.250	3.150		4.200
1991 NOV	BOL	5.200			3.800
1992 FEB	BOL	4.500	3.600		3.600
1992 APR	BOL	6.100			3.800
1992 JUN	BOL	6.550			6.050
1992 AUG	BOL	7.700			6.500
1992 OCT	BOL	6.900			6.300
1992 DEC	BOL	6.000			4.700
112-TRICHLOROETHANE (UG/L)					
		DET'N LIMIT = 0.05		GUIDELINE = 0.6 (O4)	
42 SAMPLES	BOL	BOL		BOL	

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH WSS

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM MONTICM DR FREE FLOW	DIST. SYSTEM MONTICM DR STANDING	DIST. SYSTEM HAROLD DR FREE FLOW	DIST. SYSTEM HAROLD DR STANDING
VOLATILES					
CHLORODIBROMOMETHANE (UG/L)		DET'N LIMIT = 0.10		GUIDELINE = 350 (A1+)	
1991 FEB	BDL	.100 <T	BDL	BDL	BDL
1991 APR	BDL	.200 <T	BDL	BDL	BDL
1991 JUN	BDL	BDL	BDL	BDL	BDL
1991 AUG	BDL	BDL	BDL	BDL	BDL
1991 OCT	BDL	BDL	BDL	BDL	BDL
1991 NOV	BDL	BDL	BDL	BDL	BDL
1991 FEB	BDL	BDL	BDL	BDL	BDL
1992 APR	BDL	BDL	BDL	BDL	BDL
1992 JUN	BDL	BDL	BDL	BDL	BDL
1992 AUG	BDL	BDL	BDL	BDL	BDL
1992 OCT	BDL	.600 <T	BDL	BDL	BDL
1992 DEC	BDL	BDL	BDL	BDL	BDL
TETRACHLOROETHYLENE (UG/L)		DET'N LIMIT = 0.05		GUIDELINE = 65 (A5)	
42 SAMPLES	BDL	BDL	BDL	BDL	BDL
BROMOFORM (UG/L)		DET'N LIMIT = 0.20		GUIDELINE = 350 (A1+)	
42 SAMPLES	BDL	BDL	BDL	BDL	BDL
1,1,2,2-TETRACHLOROETHANE (UG/L)		DET'N LIMIT = 0.05		GUIDELINE = 0.17 (D4)	
42 SAMPLES	BDL	BDL	BDL	BDL	BDL
VINYL CHLORIDE (UG/L)		DET'N LIMIT = 0.100		GUIDELINE = 2 (D1)	
15 SAMPLES	BDL	BDL	BDL	BDL	BDL
C12-DICHLOROETHYLENE (UG/L)		DET'N LIMIT = 0.100		GUIDELINE = 70 (D1)	
15 SAMPLES	BDL	BDL	BDL	BDL	BDL
CHLOROBENZENE (UG/L)		DET'N LIMIT = 0.10		GUIDELINE = 1510 (D3)	
42 SAMPLES	BDL	BDL	BDL	BDL	BDL

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH WSS

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM FREE FLOW	DIST. SYSTEM MONTCALM DR STANDING	DIST. SYSTEM HAROLD DR FREE FLOW	DIST. SYSTEM HAROLD DR STANDING
VOLATILES					
1,4-DICHLOROBENZENE (UG/L)					
		DET'N LIMIT = 0.10		GUIDELINE = 5 (A1)	
1991 FEB	BDL	BDL			BDL
1991 APR	BDL	BDL			BDL
1991 JUN	BDL	BDL			BDL
1991 AUG	BDL	BDL			BDL
1991 OCT	BDL	BDL			BDL
1991 NOV	BDL	BDL			BDL
1992 FEB	BDL	BDL			BDL
1992 APR	BDL	BDL			BDL
1992 JUN	BDL	BDL			BDL
1992 AUG	BDL	BDL			BDL
1992 OCT	BDL	BDL			BDL
1992 DEC	BDL	BDL			BDL
	200 <T				
1,3-DICHLOROBENZENE (UG/L)					
		DET'N LIMIT = 0.10		GUIDELINE = 3750 (D3)	
42 SAMPLES	BDL	BDL			BDL
1,2-DICHLOROBENZENE (UG/L)					
		DET'N LIMIT = 0.05		GUIDELINE = 200 (A1)	
42 SAMPLES	BDL	BDL			BDL
ETHYLENE DIBROMIDE (UG/L)					
		DET'N LIMIT = 0.05		GUIDELINE = 50 (D1)	
42 SAMPLES	BDL	BDL			BDL
TOTL TRIHALOMETHANES (UG/L)					
		DET'N LIMIT = 0.50		GUIDELINE = 350 (A1)	
1991 FEB	BDL	70.600			73.750
1991 APR	BDL	86.750			97.400
1991 JUN	BDL	114.500			131.400
1991 AUG	BDL	99.950			108.900
1991 OCT	BDL	64.800			75.400
1991 NOV	BDL				56.800
1992 FEB	BDL	59.000			77.000
1992 APR	BDL	106.800			135.950
1992 JUN	BDL	148.050			142.700
1992 AUG	BDL	173.300			116.500
1992 OCT	BDL	132.600			
1992 DEC	BDL	109.000			88.200

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 PETERBOROUGH WSS

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM FREE FLOW	DIST. SYSTEM MONTICALLI OR STANDING	DIST. SYSTEM HAROLD OR FREE FLOW	DIST. SYSTEM HAROLD OR STANDING
RADIONUCLIDES					
COBALT 60 (BQ/L)		DET'N LIMIT = 0.70		GUIDELINE = N/A	
8 SAMPLES	BDL				
CESIUM 134 (BQ/L)		DET'N LIMIT = 0.70		GUIDELINE = N/A	
8 SAMPLES	BDL				
CESIUM 137 (BQ/L)		DET'N LIMIT = 0.70		GUIDELINE = 50 (A1)	
8 SAMPLES	BDL				
GROSS ALPHA COUNT (BQ/L)		DET'N LIMIT = 0.04		GUIDELINE = 0.55 (D1)	
8 SAMPLES	BDL				
GROSS BETA COUNT (BQ/L)		DET'N LIMIT = 0.04		GUIDELINE = N/A	
1991 JUN	BDL				
1991 OCT	.070				
1992 JUN	.080				
1992 AUG	.440				
TRITIUM (BQ/L)		DET'N LIMIT = 7.00		GUIDELINE = 40000 (A1)	
1991 JUN	BDL				
1991 OCT	9.000				
1992 JUN	7.000				
1992 AUG	8.000				
IODINE 131 (BQ/L)		DET'N LIMIT = 0.70		GUIDELINE = 10 (A1)	
8 SAMPLES	BDL				

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
BACTERIOLOGICAL			
FECAL COLIFORM MEMBRANE FILTRATION	CT/100ML	0	0 (A1)
STANDARD PLATE COUNT MEMBRANE FILT.	CT/ML	0	500/ML (A3)
TOTAL COLIFORM BACKGROUND MF	CT/100ML	0	N/A
TOTAL COLIFORM MEMBRANE FILTRATION	CT/100ML	0	5/100ML (A1)
CHEMISTRY (FLD)			
FIELD COMBINED CHLORINE RESIDUAL	MG/L	0	N/A
FIELD TOTAL CHLORINE RESIDUAL	MG/L	0	N/A
FIELD FREE CHLORINE RESIDUAL	MG/L	0	N/A
FIELD PH	DMNSLESS	N/A	6.5-8.5 (A4)
FIELD TEMPERATURE	DEG.C	N/A	15.0 (A3)
FIELD TURBIDITY	FTU	N/A	1.0 (A1)
CHEMISTRY (LAB)			
ALKALINITY	MG/L	0.20	30-500 (A4)
AMMONIUM TOTAL	MG/L	0.002	0.05 (F2)
CALCIUM	MG/L	0.20	100.0 (F2)
CHLORIDE	MG/L	0.20	250.0 (A3)
COLOUR	TCU	0.50	5.0 (A3)
CONDUCTIVITY	UMHO/CM	1.00	400.0 (F2)
CYANIDE	MG/L	0.001	0.2 (A1)
DISSOLVED ORGANIC CARBON	MG/L	0.10	5.0 (A3)
FLUORIDE	MG/L	0.01	1.5* (A1)
HARDNESS	MG/L	0.50	80-100 (A4)
IONCAL	DMNSLESS	N/A	N/A
LANGELIERS INDEX	DMNSLESS	N/A	N/A
MAGNESIUM	MG/L	0.10	30.0 (F2)
NITRATES (TOTAL)	MG/L	0.005	10.0 (A1)
NITRITE	MG/L	0.001	1.0 (A1)
NITROGEN TOTAL KJELDAHL	MG/L	0.02	N/A
PH	DMNSLESS	N/A	6.5-8.5 (A4)
PHOSPHORUS FIL REACT	MG/L	0.0005	N/A
PHOSPHORUS TOTAL	MG/L	0.002	0.4 (F2)
POTASSIUM	MG/L	0.010	10.0 (F2)
RESIDUE FILTRATE (CALCULATED TDS)	MG/L	N/A	500.0 (A3)
SODIUM	MG/L	0.20	200.0 (A4)
SULPHATE	MG/L	0.20	500.0 (A4)
TURBIDITY	FTU	0.05	1.0 (A1)
* The Maximum Acceptable Concentration (MAC) for <u>naturally occurring fluoride</u> in drinking water is 2.4 mg/L.			
CHLOROAROMATICS			
1,2,3-TRICHLOROBENZENE	NG/L	5.0	N/A
1,2,3,4-TETRACHLOROBENZENE	NG/L	1.0	N/A
1,2,3,5-TETRACHLOROBENZENE	NG/L	1.0	N/A
1,2,4-TRICHLOROBENZENE	NG/L	5.0	10000 (I)
1,2,4,5-TETRACHLOROBENZENE	NG/L	1.0	38000 (D4)
1,3,5-TRICHLOROBENZENE	NG/L	5.0	N/A
2,3,6-TRICHLOROTOLUENE	NG/L	5.0	N/A
2,4,5-TRICHLOROTOLUENE	NG/L	5.0	N/A
2,6A-TRICHLOROTOLUENE	NG/L	5.0	N/A
HEXACHLOROBENZENE (HCB)	NG/L	1.0	10 (C1)
HEXACHLOROBUTADIENE	NG/L	1.0	450 (D4)
HEXACHLOROETHANE	NG/L	1.0	1900 (D4)
OCTACHLOROSTYRENE	NG/L	1.0	N/A
PENTACHLOROBENZENE	NG/L	1.0	74000 (D4)
CHLOROPHENOLS			
2,3,4-TRICHLOROPHENOL	NG/L	100.0	N/A
2,3,4,5-TETRACHLOROPHENOL	NG/L	20.0	N/A
2,3,5,6-TETRACHLOROPHENOL	NG/L	10.0	N/A

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
2,4,5-TRICHLOROPHENOL	NG/L	100.0	2600000 (D4)
2,4,6-TRICHLOROPHENOL	NG/L	20.0	5000 (A1)
PENTACHLOROPHENOL	NG/L	10.0	60000 (A1)
METALS			
ALUMINUM	UG/L	0.10	100 (A4)
ANTIMONY	UG/L	0.05	146 (D4)
ARSENIC	UG/L	0.10	25 (A1)
BARIUM	UG/L	0.05	1000 (A2)
BERYLLIUM	UG/L	0.05	6800 (D4)
BORON	UG/L	2.00	5000 (A1)
CADMIUM	UG/L	0.05	5 (A1)
CHROMIUM	UG/L	0.50	50 (A1)
COBALT	UG/L	0.02	N/A
COPPER	UG/L	0.50	1000 (A3)
IRON	UG/L	6.00	300 (A3)
LEAD	UG/L	0.05	10 (A1)
MANGANESE	UG/L	0.05	50 (A3)
MERCURY	UG/L	0.02	1 (A1)
MOLYBDENUM	UG/L	0.05	N/A
NICKEL	UG/L	0.20	350 (D3)
SELENIUM	UG/L	1.00	10 (A1)
SILVER	UG/L	0.05	N/A
STRONTIUM	UG/L	0.10	N/A
THALLIUM	UG/L	0.05	13 (D4)
TITANIUM	UG/L	0.50	N/A
URANIUM	UG/L	0.05	100 (A1)
VANADIUM	UG/L	0.05	N/A
ZINC	UG/L	0.20	5000 (A3)
POLYNUCLEAR AROMATIC HYDROCARBONS			
ANTHRACENE	NG/L	1.0	N/A
BENZO(A) ANTHRACENE	NG/L	20.0	N/A
BENZO(A) PYRENE	NG/L	5.0	10 (A1)
BENZO(B) CHRYSENE	NG/L	2.0	N/A
BENZO(B) FLUORANTHENE	NG/L	10.0	N/A
BENZO(E) PYRENE	NG/L	50.0	N/A
BENZO(G,H,I) PERYLENE	NG/L	20.0	N/A
BENZO(K) FLUORANTHENE	NG/L	1.0	N/A
CHRYSENE	NG/L	50.0	N/A
CORONENE	NG/L	10.0	N/A
DIBENZO(A,H) ANTHRACENE	NG/L	10.0	N/A
DIMETHYL BENZO(A) ANTHRACENE	NG/L	5.0	N/A
FLUORANTHENE	NG/L	20.0	42000 (D4)
INDENO(1,2,3-C,D) PYRENE	NG/L	20.0	N/A
PERYLENE	NG/L	10.0	N/A
PHENANTHRENE	NG/L	10.0	N/A
PYRENE	NG/L	20.0	N/A
PESTICIDES & PCB			
ALACHLOR (LASSO)	NG/L	500.0	5000 (A2)
ALDRIN	NG/L	1.0	700 (A1)
ALPHA HEXACHLOROCYCLOHEXANE (BHC)	NG/L	1.0	700 (G)
ALPHA CHLORDANE	NG/L	2.0	7000 (A1)
AMETRINE	NG/L	50.0	300000 (D3)
ATRAZONE	NG/L	50.0	N/A
DESETHYL ATRAZONE	NG/L	50.0	60000 (A2)
BETA HEXACHLOROCYCLOHEXANE (BHC)	NG/L	200.0	60000 (A2)
CYANAZINE (BLADEX)	NG/L	1.0	300 (G)
DIELDRIN	NG/L	100.0	10000 (A2)
ENDOSULFAN 1 (THIODAN I)	NG/L	2.0	700 (A1)
ENDOSULFAN 2 (THIODAN II)	NG/L	2.0	74000 (D4)
ENDOSULFAN SULPHATE (THIODAN SULPHATE)	NG/L	5.0	74000 (D4)
		5.0	N/A

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
ENDRIN	NG/L	5.0	1600 (D3)
GAMMA CHLORDANE	NG/L	2.0	7000 (A1)
HEPTACHLOR	NG/L	1.0	3000 (A1)
HEPTACHLOR EPOXIDE	NG/L	1.0	3000 (A1)
HEXACHLOROCYCLOPENTADIENE	NG/L	5.0	206000 (D4)
LINDANE (GAMMA BHC)	NG/L	1.0	4000 (A1)
METHOXYCHLOR	NG/L	5.0	900000 (A1)
METOLACHLOR	NG/L	500.0	50000 (A2)
METRIBUZIN (SENCOR)	NG/L	100.0	80000 (A1)
MIREX	NG/L	5.0	N/A
P,P-DDD	NG/L	5.0	30000 (A1)
O,P-DDT	NG/L	5.0	30000 (A1)
P,P-DDT	NG/L	5.0	30000 (A1)
P,P-DDE	NG/L	1.0	30000 (A1)
OXYCHLORDANE	NG/L	2.0	N/A
PCB	NG/L	20.0	3000 (A2)
PROMETONE	NG/L	50.0	52500 (D3)
PROMETRYNE	NG/L	50.0	1000 (A2)
PROPAGINE	NG/L	50.0	700000 (D3)
SIMAZINE	NG/L	50.0	10000 (A2)
DESETHYL SIMAZINE	NG/L	200.0	10000 (A2)
TOXAPHENE	NG/L	500.0	5000 (A1)
PHENOLICS			
PHENOLICS (UNFILTERED REACTIVE)	UG/L	0.2	N/A
SPECIFIC PESTICIDES			
2,4 D PROPIONIC ACID	NG/L	100.0	N/A
2,4,5-TRICHLOROPHOXY ACETIC ACID	NG/L	50.0	280000 (A1)
2,4-DICHLOROBUTYRIC ACID (2,4-D)	NG/L	100.0	100000 (A1)
2,4-DICHLOROPHOXYBUTYRIC ACID (2,4-DB)	NG/L	200.0	N/A
2,4,5-TP (SILVEX)	NG/L	20.0	10000 (A1)
BUTYLATE (SUTAN)	NG/L	2000.0	245000 (D3)
CARBARYL (SEVIN)	NG/L	200.0	90000 (A1)
CARBOFURAN	NG/L	2000.0	90000 (A1)
CHLOROPROPHAM (CIPC)	NG/L	2000.0	350000 (G)
CHLORPYRIFOS (DURSABN)	NG/L	20.0	N/A
DIALLATE	NG/L	2000.0	N/A
DIAZINON	NG/L	20.0	20000 (A1)
DICAMBA	NG/L	50.0	120000 (A1)
DICHLOROVOS	NG/L	20.0	N/A
EPTAM	NG/L	2000.0	N/A
ETHION	NG/L	20.0	35000 (G)
IPC	NG/L	2000.0	N/A
MALATHION	NG/L	20.0	190000 (A1)
METHYL PARATHION	NG/L	50.0	9000 (D3)
METHYLTRITHION	NG/L	20.0	N/A
MEVINPHOS	NG/L	20.0	N/A
PARATHION	NG/L	20.0	50000 (A1)
PHORATE (THIMET)	NG/L	20.0	2000 (A2)
PICHLORAM	NG/L	100.0	190000 (A2)
PROPOXUR (BAYGON)	NG/L	2000.0	140000 (D3)
RELDAN	NG/L	20.0	N/A
RONNEL	NG/L	20.0	N/A
VOLATILES			
1,1-DICHLOROETHANE	UG/L	0.10	N/A
1,1-DICHLOROETHYLENE	UG/L	0.10	7 (D1)
1,2-DICHLOROBENZENE	UG/L	0.05	200 (A1)
1,2-DICHLOROETHANE	UG/L	0.05	5 (A1)
1,2-DICHLOROPROPANE	UG/L	0.05	5 (D1)
1,3-DICHLOROBENZENE	UG/L	0.10	3750 (D3)
1,4-DICHLOROBENZENE	UG/L	0.10	5 (A1)
1,1,1-TRICHLOROETHANE	UG/L	0.02	200 (D1)
1,1,2-TRICHLOROETHANE	UG/L	0.05	0.6 (D4)
1,1,2,2-TETRACHLOROETHANE	UG/L	0.05	0.17 (D4)

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
BENZENE	UG/L	0.05	5 (A1)
BROMOFORM	UG/L	0.20	350 (A1+)
CARBON TETRACHLORIDE	UG/L	0.20	5 (A1)
CHLOROBENZENE	UG/L	0.10	1510 (D3)
CHLORODIBROMOMETHANE	UG/L	0.10	350 (A1+)
CHLOROFORM	UG/L	0.10	350 (A1+)
CIS 1,2-DICHLOROETHYLENE	UG/L	0.10	70 (D1)
DICHLOROBROMOMETHANE	UG/L	0.05	350 (A1+)
ETHYLENE DIBROMIDE	UG/L	0.05	50 (D1)
ETHYLBENZENE	UG/L	0.05	2.4 (A3)
M-XYLENE	UG/L	0.10	300 (A3*)
METHYLENE CHLORIDE	UG/L	0.50	50 (A1)
O-XYLENE	UG/L	0.05	300 (A3*)
P-XYLENE	UG/L	0.10	300 (A3*)
STYRENE	UG/L	0.05	100 (D1)
TETRACHLOROETHYLENE	UG/L	0.05	65 (A5)
TRANS 1,2-DICHLOROETHYLENE	UG/L	0.10	70 (D1)
TOLUENE	UG/L	0.05	24 (A3)
TOTAL TRIHALOMETHANES	UG/L	0.50	350 (A1)
TRICHLOROETHYLENE	UG/L	0.10	50 (A1)
VINYL CHLORIDE	UG/L	0.10	2 (D1)
RADIONUCLIDES			
TRITIUM	BQ/L	7.0	40000 (A1)
GROSS ALPHA COUNT	BQ/L	0.04	0.55# (D1)
GROSS BETA COUNT	BQ/L	0.04	N/A
COBALT 60	BQ/L	0.70	N/A
CESIUM 134	BQ/L	0.70	N/A
CESIUM 137	BQ/L	0.70	50 (A1)
IODINE 131	BQ/L	0.70	10 (A1)

Equal to 15.0 Picocuries/litre

DRINKING WATER SURVEILLANCE PROGRAM
PROGRAM DESCRIPTION

The Drinking Water Surveillance Program (DWSP) for Ontario monitors drinking water quality at municipal water supply systems. The DWSP Database Management System provides a computerized drinking water quality information system for the supplies monitored. The objectives of the program are to provide:

- immediate, reliable, current information on drinking water quality;
- a flagging mechanism for guideline exceedance;
- a definition of contaminant levels and trends;
- a comprehensive background for remedial action;
- a framework for assessment of new contaminants; and
- an indication of treatment efficiency of plant processes.

PROGRAM

The DWSP officially began in April 1986 and is designed to eventually include all municipal water supplies in Ontario. In 1992, 109 systems were being monitored. Water supply locations have been prioritized for surveillance based primarily on criteria such as population density, probability of contamination and geographical location.

An ongoing assessment of future monitoring requirements at each location will be made. Monitoring will continue at the initial locations at an appropriate level and further locations will be phased into the program as resources permit.

A major goal of the program is to collect valid water quality data in context with plant operational characteristics at the time of sampling. As soon as sufficient data have been accumulated and analyzed, both the frequency of sampling and the range of parameters may be adjusted accordingly.

Assessments are carried out at all locations prior to initial sampling, in order to acquire complete plant process and distribution system details and to designate (and retrofit if necessary) all sampling systems and locations. This ensures that the sampled water is a reflection of the water itself.

Samples are taken of raw (ambient water) and treated water at the treatment plant and of consumer's tap water in the distribution system. In order to determine possible effects of distribution on water quality, both standing and free flow water in old and new sections of the distribution system are sampled. Sampling is carried out by operational personnel who have been trained in applicable procedures.

Comprehensive standardized procedures and field test kits are supplied to sampling personnel. This ensures that samples are taken and handled according to standard protocols and that field testing will supply reliable data. All field and laboratory analyses are carried out using "approved documented procedures". Most laboratory analyses are carried out by the Ministry of Environment and Energy (MOEE), Laboratory Services Branch. Radionuclides are analyzed by the Ministry of Labour.

DATA REPORTING MECHANISM

When the analytical results are transferred from the MOEE laboratory into the DWSP system, printouts of the completed analyses are sent to the MOEE District Officer, the appropriate operational staff and are also retained by the DWSP unit.

PROGRAM INPUTS AND OUTPUTS

There are four major inputs and four major outputs in the program.

Program Input - Plant and Distribution System Description

The system description includes plant specific non-analytical information acquired through a questionnaire and an initial plant visit. During the initial assessment of the plant and distribution system, questionnaire content is verified and missing information added. It is intended that all data be kept current with scheduled annual updates.

The Plant and Distribution System Description consists of the following seven components:

1. PROCESS COMPONENT INVENTORY

All physical and chemical processes to which the water is subjected, from the intake pipe to the consumers' tap (where possible), are documented. These include: process type, general description of physical structures, material types, sizes, and retention time for each process within the plant. The processes may be as simple as transmission or as complex as carbon adsorption.

2. TREATMENT CHEMICALS

Chemicals used in the treatment processes, their function, application point, supplier and brand-name are recorded. Chemical dosages applied on the day of sampling are recorded in DWSP.

3. PROCESS CONTROL MEASUREMENTS

Documentation of in-plant monitoring of process parameters (eg. turbidity, chlorine residuals, pH, aluminum residuals) including methods used, monitoring locations and frequency is contained in this section. Except for the recorded Field Data, in-plant monitoring results are not retained in DWSP but are retained by the water treatment plant personnel.

4. DESIGN FLOW AND RETENTION TIME

Hydraulic capacity, designed and actual, is noted here. Retention time (the time that a block of water is retained in the plant) is also noted. Maximum, minimum and average flow, as well as a record of the flow rate on the day of sampling, are recorded in DWSP.

5. DISTRIBUTION SYSTEM DESCRIPTION

This area includes the storage and transmission characteristics of the distribution system after the water leaves the plant.

6. SAMPLING SYSTEM

Each plant is assessed for its adequacy in terms of the sampling of bacteriological, organic and inorganic parameters. Prime considerations in the assessment and design of the sampling system are:

- i/ the sample is an accurate representation of the actual water condition, eg. raw water has had no chemical treatment;
- ii/ the water being sampled is not being modified by the sampling system;
- iii/ the sample tap must be in a clean area of the plant, preferably a lab area; and
- iv/ the sample lines must be organically inert (no plastic, ideally stainless steel).

It is imperative that the sampled water be a reflection not of the sampling system but of the water itself.

The sampling system documentation includes: origin of the water; date sampling was initiated; size, length and material type (intake, discharge and tap); pump characteristics (model, type, capacity); and flow rate.

7. PERSONNEL

This section contains the names, addresses and phone numbers of current plant management and operational staff, distribution system management and operational staff, Medical Officer of Health and appropriate MOEE personnel associated with the plant.

Program Input - Field Data

The second major input to DWSP is field data. Field data is collected at the plant and from the distribution system sites on the day of sampling. Field data consists of general operating conditions and the results of testing for field parameters. General operating conditions include chemicals used, dosages, flow and retention time on the day of sampling, as well as, monthly maximum, minimum and average flows. Field parameters include turbidity, chlorine residuals (free, combined and total), temperature and pH. These parameters are analyzed according to standardized DWSP protocols to allow for interplant comparison.

Program Input - Laboratory Analytical Data

The third major input to DWSP is Laboratory Analytical Data. Samples gathered from the raw, treated and distribution sampling sites are analyzed for the presence of approximately 180 parameters at a frequency of two to twelve times per year. Sixty-five percent of the parameters are organic. Parameters measured may have health or aesthetic implications when present in drinking water. Many of the parameters may be used in the treatment process or may be treatment by-products. Due to the nature of certain analytical instruments, parameters may be measured in a "scan" producing some results for parameters that are not on the DWSP priority list, but which may be of interest. The majority of parameters are measured on a routine basis. Those that are technically more difficult and/or costly to analyze, however, are done less frequently. These include Specific Pesticides and Chlorophenols.

Although the parameter list is extensive, additional parameters with the potential to cause health or aesthetic related problems may be added provided reliable analytical and sampling methods exist.

All laboratory generated data is derived from standardized, documented analytical protocols. The analytical method is an integral part of the data and as methods change, notation will be made and comparison data documented.

Program Input - Parameter Reference Information

The fourth major input to DWSP is Parameter Reference Information. This is a catalogue of information for each substance analyzed on DWSP. It includes parameter name and aliases, physical and chemical properties, basic toxicology, world-wide health limits, treatment methods and uses. The Parameter Reference Information is computerized and can be accessed through the Query function of the DWSP database. An example is shown in figure 1.

Program output - Query

All DWSP information is easily accessed through the Query function, therefore, anything from addresses of plant personnel to complete water quality information for a plant's water supply is instantly available. The DWSP computer system makes relatively complex inquiries manageable. A personal password allowing access into the DWSP query mode in all MOEE offices is being developed by the DWSP group.

Program Output - Action Alerts

Drinking Water quality in Ontario is evaluated against provincial objectives as outlined in the Ontario Drinking Water Objectives publication. Should the reported level of a substance in treated water exceed the Ontario Drinking Water Objective, an "Action Alert" requiring resampling and confirmation is issued. This assures that operational staff, health authorities and the public are notified as soon as possible of the confirmation of an exceedance and remedial action taken. This report supplies a history of the occurrence of past exceedances at the plant plus a historical summary on the parameter of concern.

In the absence of Ontario Drinking Water Objectives, guidelines/limits from other agencies are used. The Parameter Listing System, published by MOEE (ISBN 0-7729-4461-X), catalogues and keeps current guidelines for 650 parameters from agencies throughout the world. If these guidelines are exceeded, the results are flagged and evaluated by DWSP personnel. An "Action Alert" will be issued if warranted.

Program Output - Report Generation

Custom reports can be generated from DWSP to meet MOEE Regional needs and to respond to public requests.

Program Output - Annual Reports

It is the practice of DWSP to produce an annual report containing analytical data along with companion plant information.

FIG.1

PARAMETER REFERENCE INFORMATION

NAME: BENZENE

CAS#: 71-43-2

MOLECULAR FORMULAE: C_6H_6

DETECTION LIMIT: (FOR METHOD POCODO) 0.05 $\mu\text{g/L}$

SYNONYMS: BENZOL; BENZOLE; COAL NAPHTHA; CARBON OIL (27)
CYCLOHEXATRIENE (41)

CHARACTERISTICS: COLOURLESS TO LIGHT-YELLOW, MOBILE, NONPOLAR LIQUID, OF
HIGHLY REFRACTIVE NATURE, AROMATIC ODOUR; VAPOURS BURN
WITH SMOKING FLAME (30)

PROPERTIES: SOLUBILITY IN WATER: 1780-1800 mg/L AT 25C (41)
THRESHOLD ODOUR: 0.5 - 10 PPM IN WATER
THRESHOLD TASTE: 0.5 mg/L IN WATER (39)
ENVIRONMENTAL FATE: MAY BIOACCUMULATE IN LIVING ORGANISMS
AND APPEARS TO ACCUMULATE IN ANIMAL TISSUES THAT EXHIBIT
A HIGH LIPID CONTENT OR REPRESENT MAJOR METABOLIC SITES,
SUCH AS LIVER OR BRAIN; SMALL QUANTITIES EVAPORATE FROM
SOILS OR ARE DEGRADED RATHER QUICKLY (80)

SOURCES: COMMERCIAL: PETROLEUM REFINING; SOLVENT RECOVERY; COAL TAR
DISTILLATION (39); FOOD PROCESSING AND TANNING INDUSTRIES;
COMBUSTION OF CAR EXHAUST.
ENVIRONMENTAL: POSSIBLE SOURCE IS RUNOFF.

USES: DETERGENTS; NYLON; INTERMEDIATE IN PRODUCTION OF OTHER
COMPOUNDS, SUCH AS PESTICIDES; SOLVENT FOR EXTRACTION AND
RECTIFICATION IN RUBBER INDUSTRY; DEGREASING AND CLEANSING
AGENT; GASOLINE.

REMOVAL: THE FOLLOWING PROCESSES HAVE BEEN SUCCESSFUL IN REMOVING
BENZENE FROM WASTEWATER: GAC ADSORPTION, PRECIPITATION
WITH ALUM AND SUBSEQUENT REMOVAL VIA SEDIMENTATION,
COAGULATION AND FLOCCULATION, SOLVENT EXTRACTION,
OXIDATION

ADDITIONAL PROPERTIES: MOLECULAR WEIGHT: 78.12
MELTING POINT: 5.5°C (27)
BOILING POINT: 80.1°C (27)
SPECIFIC GRAVITY: 0.8790 AT 20°C (27)
VAPOUR PRESSURE: 100 MM AT 26.1°C (27)
HENRY'S LAW CONSTANT: 0.00555 ATM-M3/MOLE (41)
LOG OCT./WATER PARTITION COEFFICIENT: 1.95 TO 2.13 (39)
CARBON ADSORPTION: K=1.0; 1/N=1.6; R=0.97; PH=5.3 (41)
SEDIMENT/WATER PARTITION COEFFICIENT: NO DATA

Appendix B

DWSP SAMPLING GUIDELINE

i) Raw and Treated at Plant

General Chemistry	-500 mL plastic bottle (PET 500) -rinse bottle and cap with sample water three times -fill to 2 cm from top
Bacteriological	-220 mL plastic bottle with white seal on cap -do <u>not</u> rinse bottle, preservative has been added -avoid touching bottle neck or inside of cap -fill to top of red label as marked
Metals	-500 mL plastic bottle (PET 500) -rinse bottle and cap three times -fill to 2 cm from top -add 10 drops nitric acid (HNO_3) (Caution: HNO_3 is corrosive)
Volatiles (duplicates) (OPOPOP)	-45 mL glass vial with septum (teflon side must be in contact with sample) -do <u>not</u> rinse bottle -fill bottle completely without bubbles
Organics (OWOC), (OWTRI)	-1 L amber glass bottle per scan -do <u>not</u> rinse bottle -fill to 2 cm from top
Specific Pesticides (OWCP), (PEOP), (PECAR)	-as per Organics -three extra bottles must be filled
Polyaromatic hydrocarbons (OAPAHX)	-1 L amber glass bottle per scan -do <u>not</u> rinse bottle -fill to 2 cm from top -add 25 drops of sodium thiosulphate
Cyanide (Treated only)	-500 mL plastic bottle (PET 500) -rinse bottle and cap three times -fill to 2 cm from top -add 10 drops sodium hydroxide (NaOH) (Caution: NaOH is corrosive)
Mercury	-250 mL glass bottle -rinse bottle and cap three times -fill to top of label -add 20 drops each nitric acid (HNO_3) and potassium dichromate ($\text{K}_2\text{Cr}_2\text{O}_7$) (Caution: HNO_3 & $\text{K}_2\text{Cr}_2\text{O}_7$ are corrosive)

Phenols	-250 mL glass bottle -do <u>not</u> rinse bottle, preservative has been added -fill to top of label
Radionuclides (as scheduled)	-4 L plastic jug -do <u>not</u> rinse, carrier added -fill to 5 cm from top
Organic Characterization (GC/MS - once per year) (PBVOL), (PBEXT)	-1 L amber glass bottle; instructions as per organic -250 mL glass bottle -do <u>not</u> rinse bottle -fill completely without bubbles

Steps:

1. Let sampling water tap run for an adequate time to clear the sample line.
2. Record time of day on submission sheet.
3. Record temperature on submission sheet.
4. Fill up all bottles as per instructions.
5. Record chlorine residuals (free, combined and total for treated water only), turbidity and pH on submission sheet.
6. No smoking in area of sample location.

ii) Distribution Samples (standing water)

General Chemistry	-500 mL plastic bottle (PET 500) -rinse bottle and cap with sample water three times -fill to 2 cm from top
Metals	-500 mL plastic bottle (PET 500) -rinse bottle and cap three times -fill to 2 cm from top -add 10 drops nitric acid (HNO_3) (Caution: HNO_3 is corrosive)

Steps:

1. Record time of day on submission sheet.
2. Place bucket under tap and open cold water.
3. Fill to predetermined volume.
4. After mixing the water, record the temperature on the submission sheet.

5. Fill general chemistry and metals bottles.

6. Record chlorine residuals (free, combined and total), turbidity and pH on submission sheet.

iii) Distribution Samples (free flow)

General Chemistry	-500 mL plastic bottle (PET 500) -rinse bottle and cap with sample water three times -fill to 2 cm from top
Bacteriological	-250 mL plastic bottle with white seal on cap -do <u>not</u> rinse bottle, preservative has been added -avoid touching bottle neck or inside of cap -fill to top of red label as marked
Metals	-500 mL plastic bottle (PET 500) -rinse bottle and cap three times -fill to 2 cm from top -add 10 drops nitric acid HNO_3 (Caution: HNO_3 is corrosive)
Volatiles (duplicate) (OPOPUP)	-45 mL glass vial with septum (teflon side must be in contact with sample) -do <u>not</u> rinse bottle, preservative has been added -fill bottle completely without bubbles
Organics (OWOC)	-1 L amber glass bottle per scan -do <u>not</u> rinse bottle -fill to 2 cm from top
Polyaromatic Hydrocarbons (OPAHX)	-1 L amber glass bottle per scan -do <u>not</u> rinse bottle -fill to 2 cm from top -add 25 drops of sodium thiosulphate

Steps:

1. Record time of day on submission sheet.

2. Let cold water flow for five minutes.

3. Record temperature on submission sheet.

4. Fill all bottles as per instructions.

5. Record chlorine residuals (free, combined and total), turbidity and pH on submission sheet.

